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# AMERICAN JOURNAL OF PSYCHIATRY

## CONFLICT AND INTEGRATION IN SCHIZOPHRENIC DEVELOPMENT.

By EUGEN KAHN, M. D., AND LOUIS H. COHEN, M. D.,  
*Yale University.*

The substitution of the term schizophrenia for dementia præcox, by Bleuler, has met with almost universal acceptance probably because of the general reference which the term schizophrenia has to the "splitting" of the entire personality. It is from the special point of view of this "splitting" that we venture to discuss a case which represents a type of schizophrenic development which has not as yet received adequate attention. There may be found some clue to a clinical and psychophysiological kind of "splitting" which may, to a certain extent, contain factors of a special type of schizophrenic process. Although our patient according to our present knowledge may be given the diagnostic label of schizophrenic, we would not be chagrined or surprised if in the future such cases would no longer fall within the diagnostic confines of schizophrenia.

### CASE HISTORY.

Mary Kolnocky, 29 years of age. She was a term child, born of Austrian parents, both of whom are living, at about the age of 60. Her father is a foundry worker, who had been well all his life until two years ago, since when he has had hypertension. He is a sociable, fairly even-tempered man, of asthenic physique, who drinks often, occasionally to inebriety. Her mother is strong, active and quick, is of asthenic type and of apparently fairly low intelligence. She is said to be "like the patient" and "hard to get along with." The patient is one of seven children of whom only one sibling, a brother, age 35, survives. Four of the siblings died at the age of about six months of unknown causes; another died at  $3\frac{1}{2}$  years of meningitis; and another died at the age of 20 of pulmonary tuberculosis, after an acute illness of three years. This last sibling died about 10 years ago; she is said to have had a normal personality. The surviving sibling, the brother, is unmarried,

works regularly, and supports the family. He has had one kidney removed because of tuberculosis. He appears to be of the anxious type, and rarely smiles, but beyond this displays no apparent personality abnormalities. A maternal aunt died of tuberculosis. Nothing is known of the grandparents and related members, and no history of lues, nervous or mental disease in the entire family tree could be elicited. Except for the patient's father's occasional drinking bouts, home conditions are apparently satisfactory; the family has occupied the same house for 30 years and there has always been enough money to keep the home in a fairly comfortable manner.

The patient's medical history discloses that she had mumps and tonsillitis in childhood. At the age of 16 she had an appendectomy followed by an uneventful recovery. She had influenza in 1918, but was, apparently, not very ill at the time. From October 1919, to March 1920, the patient was at a tuberculosis sanatorium where incipient tuberculosis was diagnosed on the basis of physical signs and X-ray. She was discharged from the sanatorium as a quiescent case which subsequent examinations have confirmed. There have been no cardio-respiratory or gastro-intestinal difficulties, except that the appetite has been poor for many years. The patient reports that she always had difficulty in starting to void. In the last three years her weight has fallen from 105 pounds to 89 pounds. Menstruation began at 13 years; periods have been regular, occurring every 24 days and lasting 3 days. The flow is moderate and there are no associated abnormalities except that the patient feels depressed the day before menstruation begins.

She began school at the age of six and finished eight grades at the age of 14. There was nothing distinctive about her school record. Following graduation from grade school the patient stayed at home for two years during which time she worked about the house and sometimes did housework in other homes during the day. Following this she worked for about four months as companion to a child; then for three months in a factory. In 1925, at the age of 22, she went to business school where she studied stenography for about two years. She then had a position as time-keeper in a factory for about three months and during the past two years had worked three afternoons a week as bookkeeper for a plumber in her town. Her work is reported to have been accurate and satisfactory.

*Personality and Present Illness.*—The patient says that as a child she was never a good mixer and never played childhood games with very much interest. She says that although she liked the boys she always kept away from them and they from her. As a child she never went to any parties. In her own words, "I didn't do much running and often just stood around, didn't play anything." Her father and mother were kind to her, rarely spanked her, but would sometimes scold her for disobedience. She "used to get stuck on boys" even from the first grade on in school, but she says that with one exception none of them knew that she was fond of them. From the first to the fourth grade Frederick was favored, but no more intimately than, "I liked him, I just used to look at him, I just felt I liked him. . . . We walked

together a little and in the fourth grade he gave me an apple and I gave him some candy." She had occasional somnambulist attacks up to the age of 14; there is no history of fainting spells, convulsions, or enuresis. At the age of 10, when in the fourth grade, the patient began to have attacks which she describes as a "daze." She says, "I didn't know where I was for a minute, I must have looked as if I were in a daze." These attacks would occur every two or three days, would come on suddenly and would last a minute or two. They would happen at home, on the street, or at school and would frighten the patient since, "I didn't know where I was or where I was going." These attacks have persisted until the present time, but are no more frequent nor more severe.

At about the age of 12 the patient began to masturbate, which practice she herself, apparently, discovered by accident: "I used to put my hand there. I used to get a thrill, but when I got older I just didn't get thrills any more. I stopped doing it when I was about 14. I have sometimes done it since then, but I never get a thrill any more. A few weeks ago and even yesterday I wanted to see if that would give me a thrill so I kept rubbing and rubbing and rubbing, but it didn't give me any thrill so I stopped." At about this same age the patient went through a hyper-religious episode during which she read the Bible a great deal and was much more devout in church-going, confession, etc., of the Greek Catholic Church of which she has always been a member. During this period she was very much abashed when found reading the Bible.

At the age of 18 while the patient had a position taking care of a child she says, "I was very nervous then. I was afraid she (the child) would fall any minute. My hands would tremble when I gave her a glass of water." At this same time too, "I never felt like going out like other girls. I went with girls, but never with fellows." It was at this time that the patient secured employment in the factory and at this time "my mind started to bother me. . . . I got nervous, I couldn't stand anything. The other girls got along all right. I couldn't act like they did, my mind didn't act the right way. I thought I was bad." As explanation of this self-accusation the patient said in part, "I heard different ones say I was evil-minded. I went to confession and I wanted love too. I read the Bible a lot . . . but I never seemed to go with fellows, mix with them or start going with them. I used to hear people say I had an evil mind and I felt guilty. . . . I used to have pictures, but I didn't think they were real. I would look at a picture on the wall and think. . . . I used to see pictures of a man's (long pause) you know. I used to see it on God. We have a picture of God sitting down in our church. I used to see it on the priest too. I went to confession, but didn't feel any better, so I quit that." The image of the penis was never seen on others than Christ and the priest. The dazes continued to be about the same. With the religio-sexual hallucinations, "nervousness came over me. . . . Whenever anyone would say a thing I used to get dirty words in my mind . . . for example, I would hear, 'It won't be long now,' and I would get the funniest feeling. Then, too, when anyone would say, 'balls' I would just get a funny feeling, but I got over it. . . . When I worked I used to hear them say the same things they

do now. . . . They said I was bad because I couldn't stand things or take things up right. . . . I hear the people here say the same things. One day I heard voices (doctors) in the room across the hall say about me, 'Oh! she makes me sick.' Then one day I heard a nurse ask, 'How is she?' and somebody else said 'Oh! she's bad,' or 'crabby.' All the nurses and doctors, mostly the nurses, say these things. . . . I heard the same thing when I worked for the plumber."

"There is an Italian lady up our way, she acts funny . . . she is different since she had the baby. . . . Her family says I am bad . . . her family picks on me. . . . I used to sleep on the porch and I could hear everything they said in the morning before they went to work. . . . They used to say, 'There is a lot of business up this way.' They thought I was bad. . . . My brother didn't hear them and he told me not to pay any attention to them. . . . The kids used to mock me. . . . Their mother says I act kind of funny. . . . For a year they watched every step I made, watching if I'm bad. . . . One day I heard her say to the kids, 'It's too bad she is crazy.' If I went into the yard they would say, 'There she is.' . . . They knew I wasn't right and wanted to see how I acted. . . . They never mention my name when it is something bad, but they do when it's not bad."

At the age of 22 the patient says that she witnessed her parents in sexual intercourse and that at that time she remembered that she had witnessed a similar scene when about the age of five. When questioned regarding specific details of both scenes, however, the patient was very vague and made so many inconsistent statements that grave doubt is attached to the authenticity of these scenes as she interpreted them.

In 1927 the patient, discouraged by the ineffective treatment of many physicians, dropped into a chiropractor's office, thinking he might help her. He gave her chiropractic treatment and before long began to administer caresses and "lovings" which he has continued ever since. Actual intercourse was never permitted, except intercrurally. As the patient describes this, "We would stand that way for a long time, then I would get a thrill and he would stop. . . . I did it just to feel better. . . . He always used to stop when I got a thrill. He used to put his hand over my breasts, but I didn't seem to have much feeling. I liked it, but I didn't seem to get a thrill, it didn't seem to strike or stimulate my head. . . . After the first year he got married, but I kept going. I had no one else to go to. I felt awful guilty when he got married. . . . When I did get thrills it helped my head and I would see better. Sometimes I would stop going for a month or so, but I would get worse so I would go back."

About this time the patient began to have frequent crying spells and occasional laughing spells. These have persisted up to the present time and when they occur frighten her because there is no apparent cause for many of them. It is of interest that: "the pictures stopped after I got thrills. I got more sure of myself. When I got feeling worse I didn't want anybody to see me, especially people I know. I tried to avoid everyone I knew, mostly fellows. If there was a store where I knew a fellow I knew would be there I would go another way" (laughingly).

Two years ago the patient went to work for a plumber who, like the chiropractor, is married, but despite feelings of guilt in respect to this the patient fell in love with him. She spoke of it to him, but he laughed the situation off. She says that she wanted a "thrill" but no intercourse with the plumber.

The patient reported that for many years she has had an "aching in her heart" and a "sensation that things are unreal." She says that the center or middle of her head feels paralyzed and tight, and that she is "in agony" a good deal of the time. She has had frontal headache which has been quite bad occasionally during the past seven years; these attacks last about a day and occasionally make her feel dizzy enough to be unable to walk for a minute or two. It is impossible for her to describe this aching sensation. At one time she read something about the location in the body of the spleen and she has wondered sometimes if the aching around her heart might come from a diseased spleen.

The conditions which precipitated her admission to the psychiatric clinic were: "I was having crying spells right along. I got so *I wanted a fellow*. I was getting worse, I guess I wanted a fellow, I guess I wanted an intercourse. I guess it is the only thing that will help me, but I wanted a fellow and I wanted him to love me and give me a thrill." It became necessary for her to leave her position with the plumber and after being at home for a short while, "I thought my brother was talking about me, but he said he wasn't." It was this latter situation which alarmed the patient's family and resulted in admission to the psychiatric clinic.

*Condition in Clinic.*—Physical examination revealed a young woman of asthenic physique who was poorly developed and only fairly nourished. There was much fine light hair on the arms and back and the pubic hair was of the male distribution. There was no glandular lymphadenopathy, except for a few pea-sized glands in the axillæ. The heart was not enlarged to percussion, sounds were of good quality, rhythm was normal and there were no murmurs. The pulse rate was 82 per minute and the blood pressure 110/68. There were no peripheral vascular abnormalities. The lungs were clear and resonant throughout, expansion on both sides was equal and respiratory excursion at the bases was equal and normal. Abdominal examination revealed no abnormalities except for an old McBirney scar in the R. L. Q. The skeletal system showed no abnormalities and there were no patho-neurological signs. The hymen was sufficiently dilated to admit one finger. There was a second degree retroversion of the uterus, no masses could be felt, and there was no abnormal tenderness. Rectal examination was negative. Blood and urine examination was negative; blood Kahn was negative.

*Mental Examination.*—The patient appeared to be normally active and normally capable of spontaneous activity. None of her activity appeared to be constrained or stereotyped. She was very coöperative. There was evidence of occasional tension and more frequent periods of anxiety. There were numerous crying spells which were explained by her as a reaction to her depression; there were occasional periods of laughter which, however,



did not appear to be of the silly type. She was normally talkative and rapid in speech, answered spontaneously and in response to questions and was not easily distractible. She was entirely coherent, but there was a definite trend to a discussion of her sexual difficulties. There was no rhyming or punning and there were no neologisms. Her mood was objectively one of depression which, however, was not continual; on several occasions she appeared to be quite happy. Subjectively, however, she reported that she "feels awful most of the time" and that she is "in agony." There was a definite tendency to misinterpret remarks made by others which had no relation to her. These ideas of reference were of the nature that people were speaking about her concerning two general topics, that she is insane, and that she is evil because of her sexual abnormality. There was considerable self-accusation and more self-deprecation. No hallucinations have been noted; the patient reported, however, that there has been a continual tinnitus for about one and a half years in both ears, first one and then the other, which she interprets to mean that people are talking about her. Orientation for time, place and person was completely intact. There appeared to be some impairment of memory for immediate events which was apparently dependent upon lack of attention, and related especially to reading. The patient could retell almost nothing of a simple story which she read to herself. She could repeat a simple statement adequately, but was unable to recall the additional details of the statement when slightly embellished. Her grasp of general information was fairly good; her mental age was 12 years, 6 months, and her I. Q. was between 78 (16) and 89 (14). There was little doubt that obsessive thoughts of a sexual nature were coming with insistent force into the patient's mind and which were expressed in speech even in the discussion of totally irrelevant topics. Ambitendence was obvious in her speech as, for example, in answer to the question, "What is your attitude toward intercourse?" she replied, "I didn't want to give in for a long time, not until I was married, but I feel in such agony and distress that I think I would (hesitatingly). I know that I want people to know about my going out with the plumber, but I don't know that I want people to know about it. I wouldn't want it to be a secret what I have been doing. I would like to go out just once and then go with a single fellow. I guess I want to be bad and I don't." The patient frankly admitted that she spends all her time thinking about sexual matters and was of the opinion that getting married would cure her. When asked what she thought about at other times she replied, "I just sit, my mind is blank, then I wonder and worry and sometimes I just sit. My thinking has improved since I went to the chiropractor. I can see things different. I can look at things the right way. When I went to him I didn't care, but they (the people who talk about her) didn't say as much. If I feel good they can talk all they want about me." When questioned more specifically as to whether she thought that intercourse would cure her, she answered, "I would rather get better without intercourse. Well, I never had one, I think it would help my head. What bothers me is if you had one you would be over with it, but if you haven't a husband or a steady fellow, it's not so good." Since admission she stated

that she has fallen in love with one of the members of the house staff and when asked how she feels when she is in love she answered, "When I fall in love I am in agony. . . . I am mad, I want a thrill and I feel . . . I didn't act right when I was working for the plumber. I get mad at myself. . . . I've had that on my mind a long time." She reported several dreams all of which were of a frankly erotic nature.

#### DISCUSSION.

It is beyond our purposes to attempt defense of the thesis that diagnosis of this condition is schizophrenia to the exclusion of other psychiatric conditions. We are of the opinion that clinically the picture we observe in this patient falls within the range of those abnormal mental conditions which at the present time are properly termed schizophrenic by virtue of the constellation of symptoms and signs presented. It is certainly superfluous to enumerate these symptoms singularly.

In the foreground of this picture is the specific "splitting" from reality, which according to our present knowledge is most intimately related to schizophrenia, and it is this aspect which we wish to evaluate as thoroughly as possible. The schizophrenic dissociation of this personality is not complete. One can say that this may happen in every state of schizophrenic process. When this occurs, however, it is always worth-while to attempt discovery of special factors at work. For instance, we may recall that in certain schizophrenic cases, the process is influenced by manic-depressive *Anlagen* by virtue of which, remissions, restitutions, and even more or less complete recoveries may occur. There is no clue in this case for the assumption of any manic-depressive *Anlagen*. There are several other outstanding factors, however, with which we have to deal. It is our thesis in this paper that anancastic and paranoiac features seem to give this schizophrenic patient a certain "capacity for re-integration." We suppose that it is essential to emphasize that we feel the anancastic and paranoiac features of this case to be conditioned by *Anlagen*.

It is a commonplace that with the maturation of the individual the introduction of psycho-physiological factors necessitates the adequate incorporation or integration of these factors with the personality. There are always new integrations accomplished, many of them indeed which are really re-integrations. With the attainment of new integrations or re-integrations, the horizon of

the personality normally broadens out toward limits defined only by its potentialities. The direction of these limits, and their value from the standpoint of the community, are most important for what we consider to be the personal destiny. In that sense then, the appearance of certain types of integrations, whatever their teleological significance may be, is a herald of the individual's destiny.

It is this sort of development which we feel all personalities, normal, psychopathic, and psychotic, undergo. We must take into consideration in all these individual developments that certain factors which had been formerly integrated may become disintegrated. This may be paradoxically expressed with the statement that a certain amount of disintegration is implied in all integrations and that in general these disintegrations are unlikely to lead to regressive personality changes.

We are under the impression that in our patient the struggle for integration is particularly evident, and is noticeable in the remarkable objectivity which she has toward what we call, in accordance with psychiatric parlance, her schizophrenic experiences. Her critical attitude toward these experiences seems unusual in the light of her education and intelligence. This may be most clearly seen in her dealing with sexual problems in which a very high degree of ambivalence is present. Furthermore, we suppose that her sexual ambivalence is fundamental to the disappearance or persistence of some of her symptoms. For example: the patient produced religio-sexual visual hallucinations which disappeared after she had accepted the sexual surrogate of intercrural intercourse. We assume that this sexual activity was followed by great conflict, and we venture to say that with the appearance and experience of this conflict the hallucinatory symptoms which had expressed her sex desire and her resistance against it became unnecessary and consequently were abolished. The disappearance of the hallucinations means that the degree of dissociation became less, whereas the degree of conflict, apparently, increased. Conversely, as conflict increases, dissociation decreases. One may conclude that with the cessation of conflict dissociation is complete. For this reason we conjecture that it is the *very fact of conflict* which is active in the personality's endeavor to integrate.

We believe that the development of this personality followed the so-called normal lines to a remarkable degree. On the other

hand, we become aware of the fact that the integrations and re-integrations which the advancing years necessitated, were, at least partially, influenced and shaped by the schizophrenic process. It is for this reason that we consider this course a schizophrenic *development*. We do not think that the integrative-reintegrative development of our patient is due to the mildness of the schizophrenic process to which she is subject, but we do assume that it is due to factors in her personality in which egocentricity, ego-searching, passive autism, and ambivalence form the soil of anancastic\* growth.

The necessity for adjustment and integration is an omnipresent factor in personality because conflict seems to be deeply rooted. Since the sexual nature of the anancastic mold springs from the impulse life, it is not surprising that it receives, while integration is going on, disproportionate emphasis with consequent narrowing of the horizon of the total personality. In this disproportionate emphasis, this narrowing of the horizon, we may see a process of "splitting" which is clinically recognized by schizophrenic symptomatology. For, with the appearance of more schizophrenic symptoms as the years went on, the necessity to integrate each of them with the development of the psychophysiological personality occurred. In this way, the schizophrenic destiny of our patient seems to have become more and more assured. In this sense, therefore, we emphasize in her development not increasing disintegration or regression but progressive re-integration and advance toward a schizophrenic end.

The dynamic mechanism which steers the personality to this destiny, a schizophrenic destiny, we feel is the re-integrating force of anancastic *Anlagen*. By this we mean that the anancastic *Anlagen* enabled the patient to withstand conflict and to deal with it. This capacity is a *modus operandi* of our patient's integration. The new integrations or re-integrations we do not consider as regressions to more primitive levels, but rather as integrations which remind us of the coherent systematizations with which we deal in paranoiac syndromes. This is exemplified by the manner in which

\* The words "anancastic" and "anancasm" are derived from the Greek "Ananke," the deity of fate or necessity. The terms are applied to that type of psychological manifestation generally called "compulsory."

her ideas of reference and her panacea by intercourse are brought into close relationship with her anancastic trend. In our patient we conjecture that a paranoiac force is added to the anancastic, each of which functions toward integration. The coöperation of paranoiac and anancastic *Anlagen* is probably of great importance in the determination of the integrative "level" which the personality may reach and maintain.

We are, therefore, of the opinion that the interpretation of this particular type of schizophrenic development may best be made in terms of the dynamic effect of anancastic-paranoiac *Anlagen* which act toward non-regressive integration. We feel that this conclusion, which we have drawn from our clinical observation, offers a working hypothesis which may be of value in general psychopathology.

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## CARDIO-RESPIRATORY VARIATIONS IN PERSONALITY STUDIES.\*

By J. A. LARSON, PH. D., M. D., AND G. W. HANEY, M. A.

In this paper on the study of personality we are especially interested in what might be termed the physical or physiological levels of integration. For years investigators in all fields felt that personality deviations might be explained on the basis of some disintegration or failure of the physical sphere. Thus, in the study of schizophrenia Mott, Southard, and Lewis held that there were actually brain changes which were important in the understanding of the process. Still later others felt that the endocrines were important, and thyroid was emphasized by some, adrenalin by others, etc., as influencing personality.

Kretschmer and Wertheimer were interested in a physical type of constitution and Rich did considerable work in an attempt to correlate biochemical findings with personality types. At the present time there are some observers who are focusing their attention on colloidal chemistry. Jaensch and others are interested in capillaroscopy as an aid in the study of personality deviates. Pilocarpin and adrenalin have been used in diagnostic tests, the distribution of calcium and potassium has been emphasized, and there have been many studies of the pupillary changes during psychoses or emotional disturbances.

The claims for sodium amytal, cocaine, dial, and carbon dioxide in the study and treatment of schizophrenia, and the artificially imposed hallucinations and states of delirium produced by mescal, sodium amytal, hasheesh, scopolamine, morphine, and other drugs are well known.

Since the literature is filled with references to contributions such as those mentioned, but which have no direct bearing on the investi-

\* Studies from the Institute for Juvenile Research, Chicago. Series C, No. 181.

Acknowledgment is herewith made also to the Local Community Research Committee of the University of Chicago for financial assistance given this study.

gation to be described, no further description of them can be undertaken in the present paper.

Apart from the literature mentioned above, the approach of the experimental laboratory in the study of personality has been made from many different angles. First, by far the greater number of experiments have made use of the psychogalvanometer. Roughly, the studies of galvanometric response may be divided into (1) general studies on normal subjects, and (2) studies made on subjects suffering from some pathological condition, either mental or physical or both. We, of course, are much more interested in the latter, but, in order to preserve completeness and continuity a general survey of both fields will be made.

Bartlett's work on the general problem as to whether the psychogalvanic phenomenon indicates emotion gives careful attention to the question of sequence and comes to the conclusion that it is quite possible that the reflex, in so far as it is connected with emotions at all, is connected with the subjective state of purely undifferentiated feeling, which he describes as "a striving which precedes objective reference to the stimulus which has caused the disturbance." He relates it to Wechsler's "choc" and continues, "It is probable that the mental cause of the deflection is of the nature of passive endurance or enjoyment rather than of active striving or willing." Farmer and Chambers found their most emotional subject had the greatest deflection. They also report that a highly emotional subject who had the lowest resistance during the day and the maximum number of deflections, had the highest resistance during sleep. They also report that the reflex may occur vigorously in dreams, the subjects who are the least obviously emotional in their waking state may appear to have the greatest number of deflections during sleep.

In connection with general studies on emotions Fleming notes and attempts to relate the mean resistance of the subject to his ranking according to "nervousness of temperament." In agreement with many of the earliest investigators working with the psychogalvanic reflex Féré believes the reflex reveals, as its most obvious psychological correlate, something of the nature of an emotional stimulus. He noted also that these changes were correlated with alterations in volume of the limbs as shown by the plethysmograph. Herman's earlier work led him to Féré's conclusion, viz., that the psychical

correlate of the reflex is something in the nature of an emotional disturbance. Sticker, working several years later, reached the same conclusion as had Féré and Herman. Incidentally, Sticker repeated Tarchanoff's experiments and while not opposing his secretion theory, held that the changes in capillary circulation also played an important part..

A. D. Waller, working in 1893, agrees with Féré, Herman and Sticker as to the emotional background of the reflex. It was during his investigation of 1880 on the electrotonic changes of excitability of the motor and sensory nerves of man, that he noticed irregular galvanometric deflections, which at that time he could only explain as being due to slight alterations of contact between the skin and the electrodes caused by muscular movement. In a later research Waller clearly showed that large reactions are obtained without any muscular movement visible on a myograph of sufficient delicacy to indicate the movements of the pulse. Sidis' theory that the phenomenon is due to an electromotive force of muscular origin can therefore be disregarded.

Waller further observed that "the more perfectly an examinee can control the visible signs of emotion, the more violently is the galvanometer deflected by reason of his suppressed emotion." Larson has made a similar statement in connection with his findings while using the cardio-pneumo-psychogram in deception detection; viz., that the better control the individual has over overt manifestations of emotional tension the more likely he is to compensate markedly with an erratic cardiograph tracing.

Prideaux's statement to the effect that the reflex corresponds not to an emotion but to an act of suppression of emotion by the cortex, is of interest, and is contrary to the tenets of the aforementioned writers. It may be that Waller had this in mind. Prideaux's statement is as follows: "The reflex occurs when an incipient impulse is aroused and when, at the same time, the impulse is reflexly inhibited from within or stimulates the discrimination function of the cortex." "The reverse," he says, "is not necessarily that the absence of a galvanic reflex necessarily means a lack of inhibition, as it may also indicate a diminution of reactivity of the skin or autonomic nervous system."

If McDougall's classifications of emotions and instincts holds; *i. e.*, that each instinct has an accompanying emotion, mention must

be made of Coleman and McRae's work. These authors had considerable success in an attempt to measure the relative strength of the instincts by measuring the size of the subjects' deflections in response to standard, instinct-arousing word situations. Their results suggest that the reflex is a function of the aroused instinct-interest or instinct-energy. Since psychologists from the time of Watson have been asking the question, "What is an instinct?" it seems a little difficult to imagine just what a "standard instinct-arousing word situation" would be like.

Aveling and McDowell, working with anæsthetized cats, were able to produce the reflex by physical stimuli. This is contrary to Veraguth's and others' findings; viz., that the reflex disappears in deep ether narcosis. Gaupaswami mentions that the reflex is present in normal, healthy monkeys.

So far we have dealt with experimental evidence which points to the conclusion that the psychogalvanic reflex is due wholly either to emotion-producing situations or situations involving emotion suppression. The following citations represent studies of the effect of conative processes on the galvanic reflex.

Messer in some experiments on the control of after-images, *i. e.*, experiments in which subjects were actively, not merely passively, stimulated, found a greater mean deflection with conative, in contrast with purely emotional experiences.

Phillipson and Menzerath state that mental work produces a deflection which is proportional to the effort involved, but they add that such deflections are smaller than those produced by emotional experiences. This conclusion gives these authors a leaning toward the emotional-cause school. Stevanovic believes that large deflections often occur with non-emotional acts.

C. W. Darrow working on electrical and circulatory responses to brief sensory and ideational stimuli comes to the conclusion that "there is a general tendency for sensory stimuli to occasion larger galvanic and smaller blood pressure changes than disturbing ideational stimuli and, conversely, for disturbing ideational stimuli to occasion larger blood pressure rise and smaller galvanic changes than sensory stimuli." Darrow's review of the work done on differences in the physiological reactions to sensory and ideational stimuli is complete and concise; it should be consulted in connection with work in this field.

Starch, with that caution which the facts demand, holds the viewpoint that the purely emotional correlation is still unestablished, and that the reflex occurs with many experiences of a non-emotional character. Well's results are clearly in favor of a conative rather than an affective correlate of the reflex. She adds that large deflections commonly occur with reports of "good or diffident effort to perceive," and "direction of desire." Large deflections were shown to occur with non-emotional will acts.

Wells, along with Aveling, W. S. Brown, and others, disagree with supporters of the emotional interpretation of the reflex. They favor the conative correlation. W. S. Brown used the psychogalvanic reflex technique in conjunction with estimates of character qualities. With carefully checked estimates of character qualities (Webb's scheme) of some 50 school boys he found no correlation of deflection with intelligence or emotionality, but obtained distinctly significant positive correlations with "desire to excel," "rapidity of decision," and "soundness of bodily constitution." From this, Waller's results now become explicable by the supposition that the reflex correlates with just those qualities other than and distinct from intelligence, which make for success in examinations.

Turning now from the consideration of the inner cause of the reflex to the stimuli, we come to the work of R. B. Cattell. He used 96 stimuli, ranging from the most simple to the most complex in significance and from the slightest to the greatest sensory intensity. These stimuli were divided equally among the six modalities of sense. They lasted from one-tenth second to eight seconds. Careful introspections were taken during and after stimulation. The author used Syz's method of curve evaluation. He comes to the following conclusions:

First, when deflections are calculated as changes in the actual resistance of the subject, there is a tendency for deflections to diminish with increased resistance of the subject.

Second, there is a slight diminution of the size of the deflections with the length of time that the subject has been attached to the galvanometer circuit. It seems probable that this corresponds to an actual decrease in the intensity of the psychical processes as a result of accommodation to the situation, rather than to any decrease of the reflex relative to the intensity of the psychical processes.



Third, there are big individual differences in the magnitude of the mean deflections for the various subjects, and this magnitude shows a greater positive correlation with a character quality which he calls "force of character." By "force of character" he means something involving general vigor, power of decision, and general formidableness of personality.

Fourth, the extent of the galvanic reflex is more nearly proportional to the conative elements in any experience than to the affective or cognitive elements.

Fifth, with increasing intensity of experience the rate of increase of deflection magnitude is different for different experiences, being greatest with conative and least with cognitive.

Sixth, the general shape of galvanogram curves seems to be to a certain extent independent of the stimulus causing the deflection. Each subject has a typical curve shape under certain conditions and the curve shapes of all subjects respond in the same general way to changes of mood and subjective condition. His last and probably most important conclusion is that galvanic deflections resulting from the carrying out of any activity are proportional to the effort involved, not to the output of energy, *i. e.*, work done.

Cattell in a second piece of work on the significance of the actual resistance in psychogalvanic experiments, attempts to relate the mean resistance of the subject to the extent of the suppression continuously exercised upon himself. He indicates that high resistance is due to sleepiness and passivity, not to fatigue as such. Thouless, working on the causes of continuous changes of resistance, reaches the same conclusion, *viz.*, that high resistance correlates with a condition of sleepiness.

Ikin, Pear, and Thouless, working on the problem of psychogalvanic phenomena in dream analysis find that deflections occur on several occasions in the absence of feeling, and state that they observed deflections to take place simply from "pulling one's self together," when emotion threatens to overcome one. This feeling of pulling one's self together may partially agree with Prideaux's "suppression" and partially with Cattell's "effort involved."

Working with the psychogalvanic technique with subjects in the hypnotic condition, Moravcsik denies that the reflex vanishes under the condition even though anæsthesia of the stimulated part is suggested. Along with Phillipson and Menzerath this author states

that mental work produces a deflection which is proportional to the effort involved, but he adds, as do others, that such deflections are smaller than those produced by emotional experiences. Prideaux takes a view opposed to that of Moravcsik as to the effect of hypnotic suggestion, and states that the reflex vanishes in the hypnotic state if anæsthesia of the stimulated part is suggested. Peterson and Jung are in agreement with Prideaux as to the disappearance of the reflex under hypnosis. The work of Prince and Peterson agrees with the above.

As to the question of the effect of fatigue on the reflex, Prideaux states that physically- and mentally-fatigued subjects give diminished deflections; that deflections are also diminished during menstruation. This would agree with the above statement and with subjective report of subjects during periods of this function. Tarchanoff also states that physically- and mentally-fatigued subjects give diminished deflections.

Radecki notes that subconsciously-perceived stimuli produce deflections just as if they were fully perceived.

On the question of the unreliability of subjective report of subjects upon whom the psychogalvanic technique was used Syz writes that the greatest deflections occur with words connected with self-assertion (self-regarding sentiment, so called) and the sex instinct of the subject, but in these cases the subjects failed to report emotional experience sufficient to account for the deflection, therefore the author concluded that their introspections were not reliable.

Washburn with Rowley and Winter, and Washburn and Pisek note that of two groups of students objectively selected, one for high emotionality and the other for unemotional nature, the former had the greater average deflections. In an earlier article by Washburn with S. Simons and Tomlinson it was found that when individual deflections were related to introspection the reported emotions of the unemotional group showed no correlation with the deflection. This is in agreement with Syz's statement as to the unreliability of the introspective report in so far as it is used in psychogalvanic experiments.

A comparison of reaction times and their relationship to psychogalvanic reflex is interesting in view of the fact that much emphasis is put on reaction time by Jung and others in association word experiments. Jung's emphasis on the importance of irregular reac-

tion times may be summed up by saying that he believes irregular reaction times either abnormally long or short are primarily due to complexes in the subject. Veraguth and Coëtta think, at least for association word experiments, that the size of the deflection bears a close relation to the length of the reaction time. Whately-Smith, in his work on association word experiments, found that the correlation between the size of the deflection and the length of the reaction was very low. Working on the question of memory he finds that both the reaction words that were very well remembered and those very poorly remembered were connected with larger deflections than those of moderate recall, and he regards the galvanic reflex as a more reliable affect indicator than reaction times. This large deflection on poorly-remembered words may be explained in terms of effort or tension produced because of inability to recall.

Waller, working with 73 medical students as subjects, finds a correlation between the size of the mean galvanic deflection and success in examinations; this he has interpreted to mean that the size of the deflection correlates with intelligence.

This completes the discussion of the psychogalvanic reflex technique results on general, not pathological, problems.

Claparède and Prideaux agree that the reflex deflection is small or absent in idiots. Contrary to Claparède's and Prideaux's findings, Gregor and Gorn find that congenital idiots give unusually large deflections of the normal type.

Gregor and Gorn believe that senile dementes give a normal type of reflex. Wells and Forbes to the contrary, state that the reflex of senile dementes is slow and feeble. This is more in agreement with the general clinical picture presented by such cases.

Gregor and Gorn report small reactions from hebephrenics and state that deflections are practically absent in hebemaneal excitement.

Prideaux divides type and degree of reactions into three groups; anxiety neuroses come in the first group, conversion neuroses in the second and dementes in the third. He classifies epileptics in group two. Gregor and Gorn state that epileptics give very variable results. Vigoroux states that actual resistance is abnormally low in epilepsy.

Gregor and Gorn state the reflex to be present and abnormally large in hyperthyroids. Peterson, considering the latent period

between the giving of the stimulus and the beginning of the response, states that it is longer in most abnormal conditions.

Prideaux finds the reflex very low in schizophrenia, especially in catatonic forms, Phillipson and Menzerath observed the same phenomena; they add that in catatonic stupor only physical stimuli produce any reaction. Wells and Forbes agree with the above mentioned authors. Peterson and Jung's hebephrenic patients give normal psychogalvanic reactions but in catatonic forms of schizophrenia the latent period of the reflex is comparatively long and the reflex itself is extremely weak. Patients suffering from chronic catatonia give no psychogalvanic reaction at all. Rickter and Jung note that in depressions the responses are spontaneous and late related to the stimulation experienced by the subject. Wells and Forbes also find the reflex slight in schizophrenia, especially in catatonic forms.

With reference to his three groupings Prideaux puts manic-depressions into the second group along with conversion neurotics and epileptics. Similar spontaneous deflections are found frequently in paranoiacs.

Vigoraux says that resistance is abnormally low in patients suffering from Basedow's disease and spinal paralysis of long standing. Prideaux agrees with the findings of Vigoraux in the above.

Prideaux on cortical degeneration or maldevelopment states the reflex is small or entirely absent. In these cases it is just as small for a cough or sneeze as it is for external stimuli.

Veraguth states that stimulation of the affected parts in hysterical anæsthesia gives rise to a galvanic reflex, thereby distinguishing it from true anæsthesia. Sticker, working only on Tarchanoff's phenomenon, noted that the reaction occurred in both anæsthetic and analgesic skin areas, organic and functional. He has no information on this point with regard to Féré's phenomenon. Vigoraux states the reflex is high in hysterics and in early stages of paralysis.

R. Vigoraux pointed out, as early as 1879, that the resistance of the skin was considerably diminished in cases of exophthalmic goiter, and increased on the anæsthetic side in patients suffering from hysterical hemianæsthesia.

Following this consideration of psychogalvanic reflex studies, we now turn to a review of the literature on the relation of basal metabolism to personality type or deviation.

Bowman, with Eidson and Burladge, report a tendency toward low basal metabolism in a study made on patients diagnosed as schizophrenics. Seven of ten of the subjects showed abnormally low basal metabolism readings. They used the ordinary accepted range of  $-10$  to  $+10$  as being normal.

Bowman and Grabfield observed the basal metabolism range of 50 cases of mental disease of all types; 42 of the 50 had minus readings. In 27, the basal was lower than a  $-10$ . Bowman, in still another study on schizophrenia, reports 23 cases, 11 of which had rates below  $-10$ . Of the remaining 12 cases, 10 had readings below normal and 2 were above normal. The extreme range in this series was from  $-38$  to a  $+6$ . Bowman and Fry made observations on 160 cases of psychoses. The cases were listed according to diagnosis. The important findings may be summarized as follows. If  $+10$  and  $-10$  are taken as normal limits for basal metabolism then in 24 cases of schizophrenia, 7 showed abnormally low readings. Eighteen of the 24 cases showed minus readings. The manic-depressive group in the depressive and hypomanic stages showed a tendency toward low readings, but this tendency was not as pronounced as is the case in schizophrenia. The cases of psychoses with epilepsy and also of cases of epilepsy without psychoses were mostly within normal limits, *i. e.*, between a  $-10$  and  $+10$  reading. There was, however, a greater tendency toward minus than plus readings. The cases of psychoses with mental deficiency or mental deficiency without psychoses were mostly within normal limits, but there was a definite tendency toward plus ratings. Nineteen cases of psychopathic personality were studied; 7 of these showed abnormally low readings, 2 abnormally high readings; 15 of the 19 cases showed minus readings.

Boothby and Sandiford report some contrary evidence. In 28 cases of mental disease they find the basal rate below a  $-10$  in 2 cases and above a  $+10$  in 2 cases. Studies were made in a number of allied conditions; 42 cases of migraine, 191 cases of "chronic nervous exhaustion," 210 cases of neurasthenia, 22 cases of "cardiac neurosis," 24 cases of epilepsy and 6 cases of encephalitis. The great majority of their readings in all of these conditions are within normal limits, and there is no striking evidence of any tendency toward either a decreased or increased basal metabolism in any of the groups mentioned.



Bornstein, taking 12 cases of schizophrenia, including 7 active cases and one case of catatonia (in which recovery occurred), and 4 cases of hebephrenia, finds that in all of the first 7 cases some degree of depression was noted; the range of these being from a  $-22$  to a  $-6$ . Four of the 7 showed figures below a  $-10$ . The case of catatonia showed a rate of  $+1$ . Of the 4 hebephrenics 2 showed significant reductions; namely, a  $-25$  and a  $-15$ , while 2 were within the normal range.

Farr, writing the results of basal metabolism tests on 100 mental cases, finds 28 per cent of his cases were below normal and 13 per cent were above normal, making 41 per cent of his cases in which there were abnormal basal rates. Of the schizophrenics 37 per cent were below normal and 17 per cent were above. Thus more than one-half of this group showed abnormal readings. In cases of mood disorders, 24 per cent were below normal and 8 per cent above normal.

Frenkel adds the report of 3 cases of hebephrenia, all of which showed basal rates within the normal range.

Gibbs and Lemcke, reporting on 11 cases of schizophrenia and 15 cases of manic-depressive psychosis, give data which show that a large number of their cases were within normal limits; however, there was a definite tendency toward low normal readings. Gräfe reports 12 cases of mental disease in 4 of which the patients were in a "basal condition." Hoskins and Sleeper, using the Benedict closed circuit apparatus, report basal metabolism findings on 80 patients suffering from schizophrenia. In this series the extreme range was from a  $-29$  to a  $+6$  with a mean value of  $-10.9$ . Of the 80 cases, the range in 43 or 56 per cent fell below a  $-10$ . The pulse rate ranged from 42 to 86 with a mean value of 61.1 beats. These authors review 206 cases of schizophrenia plus their 80 cases and find in 137 cases or 47.9 per cent that the basal rate was below a  $-10$ .

Lanfheldt has made an interesting study. His series include 40 cases, 16 of which were catatonic, 11 hebephrenic and 13 mixed. In 8 of the catatonics the disease was in the acute stage; in 6 of these 8 there was a reduction in the basal rate, the range being from a  $-24$  to a  $-15$ . The other 2 were within normal limits. Of the other 8 catatonic patients, *i. e.*, those in the quiescent phase, the rate was within normal limits. Of the 13 hebephrenics only one showed

a significant reduction with a reading of  $-24$ . The range of the remainder of this group was from a  $-3$  to a  $+13$ . In the 13 mixed cases the range was from a  $-28$  to a  $+20$ . Of the total 13, 3 acute and 3 quiescent cases showed rates below a  $-10$ . All of the patients of this group of mixed cases who showed depression below a  $-10$  were regarded by the author as predominantly catatonic.

Talbot with Hendry and Moriarty report a basal metabolism study in 11 children diagnosed as having idiopathic epilepsy. The results show that the rate was normal or elevated in all instances.

Whitehorn and Tillotson, on a series of manic depressives and schizophrenics report as follows: In 17 cases of manic-depressive psychosis 14 were within normal limits, 1 was below and 2 were above. In 11 cases of schizophrenia, 3 were within normal limits, whereas 7 were abnormally low and 1 abnormally high. The authors add that the diagnosis in the case with high basal metabolism was questionable.

Walker made 200 estimations in 44 cases of mental disorders. Thirty of the 44 were schizophrenics. He found that in 50 per cent of the latter cases the basal metabolism was lower than a  $-10$ . In the other 50 per cent the rate was either normal or slightly above normal. The basal metabolism in the subnormal cases ranged from a  $-12$  to a  $-47$ , averaging a  $-20$ . All except 2 of his other cases fell within normal limits.

Levine, working with disabled veterans, noted a metabolic rate more than 10 per cent above the average normal in about one-fifth of his patients with hysteria, neurasthenia and anxiety neurosis.

From this review of the literature of studies on basal metabolism in psychoses it would appear that in three important conditions, in which the emotional life of the individual is primarily involved, namely, schizophrenia, manic-depressive psychosis and psychopathic personality, there is a definite tendency toward a lowered basal metabolism reading, and that very few cases show an increased basal rating. The evidence points most strikingly to the tendency toward low basal metabolism in schizophrenia, this fact being consistently reported by every observer.

Dr. Marjorie Fulstow has made a very interesting and valuable study on heart weights in the various psychoses. She took Lewis' estimate, 300 grams, to be the average heart weight; and, using this figure as the norm she compared the weights of the hearts of

540 psychotics against 495 general hospital cases. The latter were sane. She classifies her psychotics as follows: 179 schizophrenics (males 83, females 96); 102 general paretics (males 81, females 21); 43 cyclothymics (males 16, females 27); 81 epileptics (males 47, females 34); 61 suffering from focal brain disease, chiefly arterio-sclerosis (males 41, females 20); 74 with senile psychoses (males 34, females 40); alcoholics she omitted because of the small number of records. Her results can best be given in the form of a table; the figures are given in terms of per cent of the psychotics having hearts weighing first, 0-200 grams or less, and second, weighing from 0-300 grams. This type of presentation will give clearly the distribution of all cases. Male and female are given separately.

TABLE I.

Classification.	0-200 grams or less.		From 0-300 grams.		Less than 300 grams.
	Male. Per cent.	Female. Per cent.	Male. Per cent.	Female. Per cent.	Both sexes.
Schizophrenia .....	12.0	20.0	49.0	66.0	56.0
General paralysis .....	.6	24.0	40.0	86.0	50.0
Epilepsy .....	.6	21.0	32.0	68.0	47.0
Cyclothymia .....	0.0	11.0	38.0	45.0	42.0
Senile dementia .....	0.0	1.0	24.0	45.0	35.0
Focal brain disease.....	1.0	0.5	15.0	60.0	31.0
General hospital cases....	.3	5.0	27.0	51.0	34.0

Due to the fact that in normal persons the heart weight increases constantly up to the seventieth year, she gives the average age of patients at death. Table II is her own.

TABLE II.

Epilepsy.	G. P.		Schizo.	Cyclothymia.		Focal br. dis.	Sen. psych.	
M. F.	M.	F.	M. F.	M.	F.	M. F.	M.	F.
46 41	47.5	47	50 52.6	63	56.4	62 63.5	74.6	74.5

The following are the data on the average heart weight in the various psychoses: neurosyphilis, male 330, female 254, difference 76 grams; focal brain disease, male 383, female 311, difference 72 grams; epilepsy, male 334, female 273, difference 61 grams; cyclothymia, male 369, female 310, difference 59 grams; schizophrenia, male 331, female 287, difference 44; senile psychosis, male 367, female 335, difference 32 grams.

Just two of her ten conclusions are of interest to us here. First, a consideration of 540 psychotic cases submitted to necropsy in the state hospitals of Massachusetts, shows 56 per cent of 179 cases of schizophrenia with heart weights less than 300 grams; 49 per cent of the men and but 66 per cent of the women (Lewis' figures for schizophrenic women are 75.5 per cent); second, the control series of normal persons (sane) showed 21 per cent of men and 51 per cent of women with heart weights less than 300 grams. This difference could hardly be said to be due to chance.

Foreman and Daniels in a study of the effect of nutritional anemia on the size of the heart state that "the results indicate that there is a close correlation between the size of the heart and the degree of anemia." The work was done on albino rats.

Gillespie, investigating possible relations between blood pressure and the emotions both in normal and abnormal individuals, asks three questions: first, whether one or two readings of blood pressure in a day are reliable samples of the prevailing pressure; second, whether, corresponding to qualitative differences in emotional conditions, there are quantitative differences in blood pressure; and third, whether in long standing emotional alterations occurring in mental disorders this correspondence also occurs. He grouped his patients into three groups: group A, patients showing obvious depressive affect, 23 in number; group B, patients not especially characterized by a prevailing affect and belonging to the schizophrenic type of reaction, 15 in number; group C, patients suffering from an organic nervous disease, 9 in number. The systolic and diastolic readings were taken by means of a Tycos sphygmomanometer, auscultatory method, at two to three hour intervals from 8 a. m. to 8 p. m. Each patient was observed over a period of from three to six days. In his depressive group A, he notes that there is no evident relation between general activity and variability of blood pressure. The main variations of blood pressure were as great on the whole in the quiet (abnormally inactive) and normally active as in the restless cases. With the schizophrenic group B, he finds no correlation between the maximal daily variation and the degree of activity, but the systolic tends to be greater in the restless cases. No relation was discernible between those cases having more changeable mood and the main variation of blood pressure. The group C, patients suffering from organic nervous disease,

showed no uniform correlation of inactivity with slight variability of blood pressure. In fact, although as a group less physically active than the preceding groups A and B, they showed a greater average variability. Emotional outbursts failed to bring about greater variability of blood pressure.

The variability was greater in restless subjects, greater on the whole in affective and organic disorders than in schizophrenia but was not necessarily more labile in patients showing lability of affect than in subjects in whom the depth of affect does not appreciably vary. When average pressures were considered, it was exceptional for a subject with a prevailing depressive affect to have a systolic persistently above normal; whereas the schizophrenic group showed persistently high and persistently low pressures in about an equal proportion of the cases. In this study a greater number of patients in each group would have been highly desirable from the standpoint of statistical reliability.

Concerning Gillespie's second question, as to whether there are quantitative differences in blood pressure corresponding to qualitative differences in emotional states, much work has been done. Binet and Verschide, working on the problem of the relation of blood pressure change to emotion, found a blood pressure change equivalent to five millimeters of mercury pressure with fear producing stimuli. Working in the special field involving emotional situations, *i. e.*, detection of deception, Burt found characteristic blood pressure changes in subjects attempting to deceive. Aside from blood pressure studies. Benussi finds that the inspiration-expiration ratio as seen in pneumograph tracings can be diagnostic in an attempt to detect deception. W. M. Marston, on examining blood pressure in lying subjects, found changes averaging 12.6 mm. mercury under deception conditions. Larson, using a modification of the Erlanger sphygmomanometer for blood pressure readings and an Ellis pneumograph to record respiration, both recordings being taken continuously, found that in the deception situation the lie could be detected. He has worked out some 36 points by which the critical section of the curve can be evaluated. L. E. Rackley found blood pressure changes in a fear producing situation.

E. B. Skaggs, investigating the problem of changes in pulse, breathing, and steadiness under conditions of startledness and excited expectancy finds the following: after receiving shocks or

hearing loud and unexpected noises, his subjects' breathing rate is accelerated, after first being momentarily checked; both thoracic and abdominal breathing amplitudes are increased, heart rate is retarded, heart beat amplitude is increased. Immediately following the noise, the pneumograph tracings become irregular and asymmetrical.

Golla and Antonavitch by using a plethysmograph cabinet which enclosed the greater portion of the body, found it possible to separate the subjects using auditory imagery from those using visual imagery. Unfortunately, introspections had to be relied upon as a check against their plethysmograph interpretation.

Turning now from the consideration of works using blood pressure and respiration as special points of reference, we come to two interesting studies. The first, by L. C. F. Chevin was a study of sweating in a group of psychotic individuals. His control was a series of normal persons. The subjects were placed in a radiant cabinet, their bodies in a reclining position. The initial temperature was 90° F. This temperature was raised 10° at a time at five-minute intervals until noticeable sweating was obtained on the body. It is clear from his results that in cases of schizophrenia there is marked delay in the onset of sudorific activity. The alterations in pulse rate, pulse pressure and systolic pressure are not marked. It is of interest to note that there is little correspondence between the temporary mental state and the delay in sweating, the important correlate of sudorific activity being the permanent mental condition. The manic, because of his activity, sweats more freely than the primary schizophrenic. It is noticed particularly, however, that the F. S. D. (Factor of Sudorific Delay) of the restless schizophrenic was not essentially different from that found in cases of catatonic stupor. This again emphasizes the importance of the point of relationship of permanent mental condition to sudorific activity.

The second study, by W. B. Cornell considers the fact of cyanosis which is frequently present in schizophrenics, often without cardiac involvement. In all, 241 schizophrenic patients were examined. These embraced all types and stages of the disease and 78 per cent were found to display some degree of cyanosis ranging from cyanosis of a mild degree to that of an extremely dusky purple. Sometimes the feet, sometimes the hands and occasionally the face and



lips present the greatest involvement. It varies from day to day and from week to week, is independent of temperature and bodily position. The severest grade of cyanosis was observed in a bedfast patient. Of the three forms of schizophrenia, catatonics showed the phenomenon in 90 per cent of cases, hebephrenics in 75 per cent and paranoiacs in 50 per cent. The relative order of degree of cyanosis is, most to last, catatonia, hebephrenia, and paranoia. The author states that acute catatonic excitement accompanied by marked cyanosis forecasts grave danger of collapse and death. The degree of cyanosis does not seem to depend upon blood pressure.

Since 1921 we have been interested in experimental studies involving physiological criteria—*i. e.*, cardio-respiratory changes in the study of personality. From the outset there have been two trends of investigation, the use of tracings (cardio-pneumo-psychogram) in the study of complex situations on the one hand, and on the other, the study of metabolic changes or variations in the energy mobilization which varies considerably among individuals. The first phase of research includes studies of deception, in the laboratory, in police and legal fields, in penitentiaries, in suspected malingerers, in delusions and hallucinations, in amnesia and hysteria, in probing for complexes, in making use of questionnaires, and in analytical work with children and adults. Statistical studies of the data secured during the past ten years seem to indicate that the cardio-respiratory technique affords valuable but not infallible criteria for practical use in deception tests, and is certainly not adequate for court usage. The results of four years' experimental study with children indicate that these criteria may be valuable as an analytical procedure in probing for complexes and in the removal of resistances; thus they are of great aid to the psychiatrist, since they act as a substitute for the Freudian analytical technique.

A survey of all the experimental work done in the study of deception, with special emphasis on cardio-respiratory changes, is being published at the present time.\* Here the variables and different objections are considered. Table III is a tabular summary of police cases which had been examined by this method up to 1923.

\*J. A. Larson *et al.*, *Deception and Deception Tests* (Chicago: The University of Chicago Press, 1932).

TABLE III.

## CASES CLEARED BY CONFESSION OR CHECK, IN BERKELEY, CALIFORNIA.

Total number of cases cleared.....	249
Total number of individuals in the above cases.....	528
Total number who confessed.....	53
Total number who lied and confessed.....	129
Total number who lied and were checked.....	36
Total number of suspects who were cleared.....	310
Property recovered in cash.....	\$8000

## DISTRIBUTION OF CASES.

Burglary .....	28
United States laws, bootleg.....	3
Miscellaneous .....	11
Sex .....	36
Larceny .....	166
Murder .....	5

CASES WHICH BECAUSE OF LACK OF CONFESSION OR THE DISAPPEARANCE  
OF THE SUSPECTS HAVE NOT BEEN CLEARED UP.

Total number of cases not cleared.....	64
Total number of individuals examined.....	333
(Of these 333, 267 were eliminated by their records.)	
Total number of individuals examined.....	333
Total number of persons tested.....	861

The interpretations of the records are objective and they may be made merely from the record without the subject having been seen, provided that the record was secured by one properly trained. The subjective element is entirely eliminated and the interpretation is based upon changes in the individual record in their relation to the question of innocence or guilt and upon the question as to whether or not these changes can be differentiated from other controls.

In this type of investigation any statistical analysis obtained from 100 subjects is not sufficient to furnish criteria of the ultimate accuracy of deception tests. The individual variations in the records may be so great, due to pathological and other causes, that it is not safe to predict from 100 records alone whether the changes occurring from deception would be in the nature of respiratory changes, cardiac changes, cardiac increase or decrease in pressure, changes in systolic or diastolic pressure, or increased frequency in rate, etc.

Statistical treatment of the changes noted in the records cannot bring out satisfactorily all of the qualitative changes present. Table IV represents the results of 1930 measurements taken from 100 records of individuals who lied about their crimes or delinquencies.

TABLE IV.

## CARDIAC CHANGES.

	A	B	C
1. Rise from base line.....	0.52 cm.	0.28 cm.	0.85 cm.
2. Duration of disturbance.....	1.95 cm.	1.32 cm.	4.75 cm.
3. Height of contraction.....	1.87 cm.	1.81 cm.	2.45 cm.

## RESPIRATORY CHANGES.

	A	B	C
1. Rise from base line.....	.....	.....	.....
2. Duration of disturbance.....	1.15 cm.	0.91 cm.	2.44 cm.
3. Height of contraction.....	1.20 cm.	1.19 cm.	2.21 cm.

## RISE OR FALL FROM THE BASE LINE.

C Greater than A.		C Greater than B.	
	0.59 cm.		0.59 cm.
P. E. ....	0.044	P. E. ....	0.033
S. D. ....	0.412	S. D. ....	0.382

## DURATION.

	3.26 cm.		3.60 cm.
P. E. ....	0.442	P. E. ....	0.366
S. D. ....	3.21	S. D. ....	3.38

## HEIGHT OF CONTRACTION.

	0.90 cm.		0.70 cm.
P. E. ....	0.090	P. E. ....	0.067
S. D. ....	0.51	S. D. ....	0.51

P. E. refers to probable error.

S. D. refers to Standard Deviation.

A represents record taken at rest, no questions asked.

B represents record showing truthful answers in response to indifferent questions.

C represents section of record showing the effects of deception.

## RESPIRATORY CHANGES.

Height.	Width.
A.....1.20 cm.	A.....1.15 cm.
B.....1.19 cm.	B.....0.91 cm.
C.....2.121 cm.	C.....2.44 cm.
C.....greater than B 1.62 cm.	C.....greater than B 1.01 cm.
C.....greater than A 1.8 cm.	C.....greater than A 1.05 cm.

Our experimental studies of factors involved in deception indicate that we have a satisfactory technique but that this is by no means an infallible one. The errors due to the fear of the innocent, guilty complexes on other situations, or other personality factors, do interfere with the introduction of such experimental work in court procedure. At present, we are testing the accuracy of this technique, both in laboratory situations where students involved in cheating have lied, in fraternity thefts, in stealing from libraries, in the lying of juveniles, in court cases and in examinations for the psychiatrist, and in deception in police work and in court situations, and in penitentiaries. Two series of experiments done under artificial laboratory situations, on being statistically studied, show that the error of interpretation is so great as to render the test practically useless. In one series of 42 subjects the majority, or 28, showed no objective changes in the records following deception, and the interpretation in the remaining cases was wrong before the real facts were known. In another series of 70, similar results were obtained. In these studies, of course, the factors were entirely different from those where the individual is lying because of fear of punishment, disgrace, or loss of property.

In 1923 one of the writers became interested in the question of the utilization of the above technique in the analysis of behavior-problem-children as well as adults. Both he and Dr. Adler felt that here was a substitute for the orthodox psycho-analytical method which should prove serviceable in the examination of children. For four years cases were examined which had been referred by psychiatrists. The following is an excerpt from a summary of this work.

The purpose of the present investigation is the study of the relative rôle which physical criteria, as obtained by the use of polygraph methods, may play in the psychiatric examination of children who present behavior difficulties. Obviously the psychiatrist must often deal with children who lie about their delinquencies and often he may not succeed in gaining the necessary rapport because of his inability to detect the deception and remove the underlying resistances. Again the psychiatrist may fail to detect resistances or complexes which may be present and, therefore, will be unable to secure the rapport requisite to the administering of the proper therapy, especially in the psychoneurotic.

The data and protocols presented in this paper are based upon the examination of 235 children. Of this group 113 cases were referred by the psychiatrists because of problems revolving about deception. In some cases the examiner felt that the child was withholding some essential data and because of untruthful answers he was unable to secure any positive findings. In such cases he was practically no further at the conclusion of his psychiatric examination than when the child was first presented. In some cases the child had been examined by several psychiatrists and the findings were all negative with the result that the behavior remained practically unaltered. In other cases certain discrepancies seemed to indicate that the child was withholding certain facts which had an important bearing upon the case. In some instances, in which sex traumata may have initiated the behavior difficulties, the psychiatrist was helpless because of the resistance and deception present. Certain children are reluctant to discuss their sexual experiences especially if any traumata or delinquencies are involved. In such cases, then, a physiological technique should prove of service.

Although it is not always wise to attempt to cross-examine a child in detail as to alleged or actual delinquencies, often objective criteria could be of assistance to the psychiatrist, especially in such cases as the following:

(1) False accusations, not infrequently made by juveniles against adults, usually involving sexual charges and occasionally made because of suggestions from others or due to other motivation.

(2) Any form of malingering. For example, a colored boy of 13 in the detention home had for weeks feigned deafness and dumbness. Much time had been spent by a psychiatrist in the attempt to secure rapport. In another instance a boy of 13 feigned auditory hallucinations for some time.

(3) Elimination of children wrongfully accused. Children have not infrequently been abused at the time of arrest. Thus, a boy of 9, upon being abused by the police, admitted stealing some 90 bicycles. Not finding or clearing up all of these thefts, the police deemed him feeble-minded and requested an intelligence test. Following a special examination by the polygraph the real facts came out.

(4) Whenever deception is important reverting the accurate evaluation of the underlying factors as in

- (a) Delinquencies of all ranges,
- (b) Where it is necessary to secure a correct sexual history, especially in the meroergastic or psychoneurotic cases.

The questions when, how, and where sex information has been obtained, and the value of such information are of extreme importance. Not infrequently considerable damage may be done by indiscreet questioning of a child. In the first place the evaluation of sex experience has apparently been a source of much confusion for many psychiatrists. Thus one or a series of sex indiscretions is elicited and considered as traumatic factors responsible for conflicts and behavior difficulties. As a matter of fact, in many cases sex is not the important etiological factor, but merely one of several symptoms, and the actual factor may be mental deficiency, schizophrenia, etc. No one, however, can deny that there are cases in which sexual maladjustment may be the motivating or the etiological factor for the behavior difficulty whether in psychoneurosis, delinquency, or other forms. This, however, does not warrant indiscreet cross-examination of every juvenile by direct or suggestive questioning.

(5) In probing for complexes and correlating the physical or physiological and emotional status of the individual, the analysis of physiological changes may be used to evaluate or to supplement questions used in the study of attitudes. A few years ago some use was made of the Woodworth-House questionnaire as to physiological changes, in the psychiatric examination of a patient. For the purpose of psychiatric diagnosis the questionnaire method alone is practically useless in most cases since many of the life factors, situations, etc., are omitted. Each individual case must be considered in its own setting and all of the psycho-biological integrative factors evaluated, as Adolf Meyer points out. Although there are so-termed "psychoneurotic inventories" no accurate psychiatric diagnosis could be made by this method to differentiate between psychoneurosis, depression, etc.; but the exact "experiment of nature" with all of its psycho-biological ramifications as described by A. Meyer, must be investigated in its individual setting.



Some years ago at a medical symposium a psychologist boldly stated: "The psychiatrist is handicapped by his sloppy technique." Nevertheless, this same worker skilled in statistical methods has worked with "psychoneurotic" questionnaires and has evaluated them statistically. After using various questionnaires and then a series of questions for the study of the personality of the child along with the polygraph technique it was discovered that questions must be added which fit the individual child examined.

The procedure in testing children as to the veracity of their statements is the same as that used for adults. A control is secured during which no experimental stimuli are introduced. This is followed by a series of indifferent questions (irrelevant to the investigation of a given delinquency), and, finally, simple and direct questions about the suspected delinquency are given. Although the child may appear terrified at first and may cry, his co-operation is quickly secured when he sees that he will not be injured. Of all the children tested only one could not be induced to submit to the test; in this case a little girl of five years was not only terrified at the sight of the apparatus but she refused to say a word while in the room.

Since it became necessary for the purpose of control to use a series of questions, an attempt was made to devise a questionnaire which would bring to light any resistances. Such a questionnaire should also furnish some information upon the character and behavior of the child.

Various types of questionnaires, attitude and trait sheets, have been devised but they are unsatisfactory because, in the first place, no satisfactory methods are utilized to test the veracity of the answers and, in the second place, they are too subjective. One such trait sheet has been used in California. The student or prisoner was told to mark those which seemed to describe himself. A relative, friend or officer acquainted with the subject was told to do the same thing. Any discrepancies were then to be noted as significant. However, in both cases the findings were merely suggestive and by no means accurate.

Any questionnaire can be rendered valueless if it is not possible to secure some objective check as to the veracity of the answers. After some preliminary experimentation a list of "key" questions was selected from a list of several hundred questions. These were

to be given while graphic records were secured. If any resistances were encountered the original list was referred to for additional data.

Some of the results obtained by the use of this questionnaire (plus questions, in the specific problem cases, bearing on the individual's delinquencies) are shown in the following table. In the statement of the problem (see Table V) whenever sexual experience or content is mentioned, it signifies that the psychiatrist had not elicited any confessed sexual experience or apparent resistances (although their presence may have been suspected because of the history given or other evidence). These tables are incomplete at best; further details could not be included in such a brief tabular form.

TABLE V.

GROUPING OF 140 CHILDREN TESTED BECAUSE OF A SPECIFIC PROBLEM.

		Per cent.
Number who lied during the test and then confessed.....	53	38
Number who confessed during the test.....	20	15
Number in whom additional complexes and resistances were uncovered .....	35	25
Number cleared or story confirmed.....	11	8
Number from whom no confession was obtained, but for whom objective criteria indicated resistances.....	21	14

RESISTANCES AND SEX INFORMATION ELICITED FROM CHILDREN (INMATES OF DETENTION HOME AND UNSELECTED CASES).

1. Sex experiences in 96 children (3 girls).\*
  - A. Admissions of sex experience (no resistance in sex questions).. 46
  - B. Resistances, lied and confessed to sex experience (removed).... 45
  - C. Denial of any sex experience..... 5
2. Resistances other than sex, 21 cases.
  - A. Subject of girls, love affairs, etc..... 8
  - B. Word "steal" ..... 6
  - C. Home ..... 7
  - D. School ..... 1
  - E. Lying ..... 1
  - F. Watermelon ..... 1†
  - G. Fear of insanity..... 1
  - H. Age ..... 1

\* Girls not questioned except in three cases because the group of girls was more highly selected than that of boys, who were in for delinquencies other than sex.

† Negro.

On the whole, the technique proved very satisfactory in the case of children. More detailed studies are now being made not only

in complex probing but in personality reactions of normal children, as well as special studies on early schizophrenia. Usually it is possible in a single examination period to secure a quick rapport with a child, search for, find and remove the complex situation. The child is then referred back to the examining psychiatrist who is then often able to secure better contact with the child and to make more accurate plans for his care and treatment.

In the penitentiary the technique has been useful in the study of deception, since many men deny their guilt. Thus in one group of 500 prisoners interviewed, 59 per cent denied their guilt. Because the percentage of those denying their guilt at Joliet Penitentiary, where the prison population is largely recidivist in character, is greater than in Pontiac Reformatory, where the population is largely made up of first offenders, it is more than likely that this percentage (59 per cent) does not in any respect correspond to actualities. A former associate of one of the writers made use of this technique in a study of attitudes of prisoners, with almost disastrous results. He questioned the inmates as to what they thought of the warden, their keepers, their crime, sex history, etc. He found so many complexes that the result was nearly explosive in character and the work was temporarily discontinued. At the present time a study is being made to see if the number of those in the penitentiary who are thought to be really innocent, as determined by a deception test, agrees statistically in the various institutions.

We have been interested in studying cases of delusions, hallucinations, and psychoneuroses from the standpoint of cardio-respiratory changes. This has proven definitely useful in the case of malingering, of suspected amnesia, etc. We have also made an interesting analysis of schizophrenics showing disturbance of different types, when complex situations are touched upon. In a study of delusions and hallucinations it was found that the individual who was convinced of the reality of his experience and admitted it, had no disturbances, in contradistinction to the malingerer who might be feigning symptoms of delusions or hallucinations. At times there was some reaction because of an associated fear. The following excerpt is taken from a paper by Adler and Larson: \*

\* "Deception and Self-Deception," *The Journal of Abnormal and Social Psychology*, January-March, 1928.

Strong belief on the ground of satisfactory reasons or evidence is conviction. The most satisfactory evidence is that rendered by our sensory organs. "Seeing is believing." Evidence thus obtained is, to all intents, experienced rather than inferred. Belief, on the other hand, always has a quality of uncertainty. It is made up usually of combinations of reasoning and of memory. Conviction by actual experience is as sudden as the event itself, whereas, belief is developed through successive stages of ratiocination. The quality of reality which actual experience has, sets a standard for matching belief. An individual then, who, because of fear or desire, attempts to build up a belief not founded on actual experience must be aware, however dimly at times, that such belief lacks the convincing quality of reality.

By real experience it is not necessary to assume correct experience, but only that the sensory apparatus has transmitted the perception of experience.

The questions then arise: (1) Can hallucination be regarded as real experience, though incorrect? (2) Is it possible to apply to the reasoning process the same criterion, and are delusions therefore to be regarded as true experiences? (3) Is the element of conviction lacking in cases of psychoneurosis?

It has been known for some time that certain physical reactions accompany responses. Among these are changes in blood pressure, pulse rate and respiration. It has been possible to develop a technique, embodying recordings of these three physical functions, which has been applied by one of us (Larson) especially to the investigation of deception.

Deception may be of two sorts, the attempted deceiving of another person, or the attempted deceiving of oneself. Both seem to be possible of achievement and each is distinguished by its own circumstances and its own difficulties. Previous studies have dealt largely with the former; the present communication concerns itself in the main with deception of self.

Contrary to the conclusions in the excellent work reported by Oedegaard who studied over five hundred psychogalvanic reflex records, our work in deception studies would seem to indicate that the cardio-respiratory criteria may show specific changes. These changes vary with the stimulus used and in a large per cent of cases are best seen in subjects lying about their guilt.

The second phase of the research deals with the correlation between physiological reactions and personality variations. A study of over 1600 records shows that these changes can afford interesting leads with reference to the classification of personality reactions.

The following is quoted from an early paper on the study of emotions: \*

The cardio-respiratory curve is very useful in the study of the emotions. Thus Sidis utilized the tracing obtained by the pneumograph to differentiate between the various elements in the case of a woman with a dual personality.

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\* John A. Larson, "The Cardio-pneumo-psychogram and Its Use in the Study of the Emotions," *Journal of Experimental Psychology*, V, October, 1922.

Pictorially, the individual is represented in two ways, first by his present physical condition as shown in his heart and respiratory rhythm, and second by his reaction under stress, during questioning which may involve him in some crime. Thus a phlegmatic individual or a person with a hypothyroid insufficiency does not have the same type of curve or react in the same manner as the nervous, dynamic type or the individual with a condition of hyperthyroidism. In the cardio-pneumo-psychograms the persons resolve themselves into groups which at first glance would seem to depend upon the temperaments or dispositions of the individuals. The cause, however, seems to be deeper, for the emotional reactions of an individual may depend entirely upon his physiological or pathological picture, . . . . Records may be grouped physiologically according to age, sex and other factors. In short any factor, normal or abnormal, which affects the heart and respiratory activity to any extent will show upon the record. This effect may be transitory or of momentary duration. In some cases, as in certain women during menstruation, there may be changes in the record which do not appear at other times. The pathological factors, such as arteriosclerosis, improper cardiac functioning due to disease, abnormal conditions induced by puberty, menopause or pregnancy, may give the records a typical appearance. In addition to dependence upon physiological and pathological factors, the appearance of the record may vary with the mental condition of the subject, which in turn, however, depends upon underlying conditions. Thus a patient of the manic-depressive type may run a rather high or a rather subnormal blood pressure, depending upon his condition. . . . . Persons who might be grouped together physiologically may be separated by their emotional reactions to various stimuli.

Interesting records have been obtained with drug addicts. The transition from the very sick, moaning, miserable individual to the cheerful person may be shown graphically by comparing the record of the same man before and after an injection of morphine or other drug. This transition may occur within a few seconds.

With the aim in view of ascertaining how far abnormal individuals may be grouped according to type, we are making a survey of several thousand individuals in the penal institutions and institutions for the insane. These cases are treated first by securing controls and later probing for complexes.

In another paper by the same writer \* the following paragraph is of interest:

During the past five years the writer has recorded polygraphic records of subjects whose emotional reactions were tested in the laboratory of the police and of the psychiatrist. It is difficult and at times impossible, under the usual laboratory conditions established in the university, to select stimuli

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\* J. A. Larson, "Classification of Polygraphic Records and the Evaluation of Emotional Reactions," *Welfare Magazine*, November, 1926.

which will elicit the desired emotional response. Thus a stimulus which might presumably arouse fear in one individual will not in another. Attempts have been made to select stimuli which will evoke such responses as fear, anger, disgust, etc. The stimuli varied from the unexpected firing of a gun, shocking the subject with considerable current, suddenly throwing him backward in a chair, having him hold a decapitated rat or requesting him to think of hypothetical situations. In most of these instances reactions were recorded in response to such stimuli and generalizations were drawn. Whether the reactions were recorded by galvanometric changes, heart action and respiration, or by photographs of the facial expressions of the subject while responding to artificial stimuli, the results were too often unreliable and worthless. In many cases proper controls were omitted and physiological variants entirely neglected, although these alone were sufficient of themselves to produce reactions, but such reactions have been interpreted to mean wholly those of fear, anger, etc. Especially inadequate is any experimental stimulus designed to arouse anger in the subject. For such a stimulus which ordinarily would do this fails the moment the subject submits to experimental procedure.

In our own work in order to secure actual emotional responses, the examiner making use of the deception technique examined suspects of every type which might be encountered in criminal investigation. In many cases the subjects, although later ascertained to be innocent, were enmeshed by strong circumstantial evidence. Whether the case involved a suspect denying an alleged murder, or a student accused of cheating, or a small boy lying to a psychiatrist, but little difficulty was experienced in securing emotional responses which at least had one element in common, *i. e.*, that of repression or of defense in the attempt to conceal some fact the confession of which might result in disgrace or even a loss of life. Furthermore, by requesting that the subject either deny or admit his guilt, it seems possible to initiate reactions which are more specific and intense than if the stimuli consist of association of words where the reaction-time method is the criterion. In addition to the actual stimulus, the subject may often worry about the effect of his lying, and his defense or resistance may become focussed upon one answer, with the result that interpretation is facilitated. Prior to the confession or check, it has been possible in many difficult cases to interpret correctly the reactions and to determine whether the subject lied or not, although the examiner may be miles away from the test and have only the record with the accompanying questions and answers upon which to base his interpretation. Of



course, once the case has been cleared up, for instance, by the restoration of the stolen property, it then becomes possible to label the record as to truth or falsehood.

With the gradual accumulation of records, it was noted that the polygraphic tracings differed one from another not only when the subject was under tension but even under conditions which were usual for him. In some cases this difference was physiological while in others it was pathological. Some ideas as to these individual variations may be secured from an inspection of a few sections taken from records published. The problem then arose as to how these records should be classified and filed. Obviously, for the purpose of scientific analysis of the data, an alphabetical or a complaint file alone would not only be cumbersome but worthless. Some method had to be devised which would take account of the objective changes in the records themselves in addition to all of the factors which might modify these records. In addition to this file for use in scientific study, a cross file consisting of alphabetical and complaint numbers was used, so that the records could be obtained for the jurist, detective, or psychiatrist. The analysis and classification of the polygraphic records comprise such factors as the following:

- I. Cardiac action (C).
- II. Respiratory action (R).
- III. Health of individual—whether:
  - A. Normal.
    1. Sex.
      - a. Prepubertal.
      - b. Puberty.
      - c. Menstruation.
      - d. Pregnancy.
      - e. Lactation.
      - f. Menopause.
    2. Age.
    3. Sleep.
    4. Exercise.
    5. Occupation.
    6. Attitude.
    7. Posture.
    8. Race.
    9. Diet.
    10. Drugs.
    11. Endocrin-physiological changes.

12. Emotion.
13. Weight.
14. Body length.
- B. Pathological variants.
  1. Endocrin.
  2. Nervous.
  3. Gastro-intestinal.
  4. Genito-urinary, including urine and blood chemistry.
  5. Arthritic.
  6. Infectious.
  7. Blood diseases.
  8. Granulomas.
    - a. Tuberculosis.
    - b. Syphilis.
    - c. Actinomycosis.
    - d. Blastomycosis.
  9. Tumors.
  10. Nose, ear and throat diseases.
  11. Eye diseases.
  12. Skin diseases.
  13. Mixed group, including the diatheses and pathological facies to be labelled with the etiological factor, if clear cut, etc.
- IV. Experimental change noted in the polygraphic record.
- V. Experimental data.
  - A. Deception.
  - B. Psychiatric problems.
  - C. Attempts to evaluate or isolate emotional components.
- VI. Result of analysis.
  - A. Deception.
    1. Lied.
    2. Lied and confessed.
    3. Confessed.
    - 1'. Lied—checked by further evidence.
    - 2'. Lied—no check.
    - 3'. Cleared.

In the first group the case could be cleared up and the record could be positively labelled, while in the second group only interpretations were possible. All records in this latter group were placed in a separate file pending further investigation. Otherwise these records were classified as the others.

- B. Resistance or problem other than deception.
  1. Sex.
  2. Anger.
  3. Fear.
  4. Music.
  5. Mental work.
  6. Nausea and disgust.

7. Pleasure.
8. Unclassified.
9. Drugs and drug addicts (alcohol, heroin, cocaine barbitol, codeine, morphine, etc.).

Since the changes, whether experimental or pathological, are recorded in terms of respiratory and cardiac action by this polygraphic technique, the primary classifications must of necessity deal with these changes. All other factors which might directly or indirectly influence the tracings, whether pathological, physiological or experimental, should be recorded. All pathology should be noted in this subsidiary classification.

*Experimental Changes.*—The polygraphic record is not only modified by physiological and pathological factors but also by experimental stimuli. These stimuli may produce varying degrees of disturbance which in themselves may simulate variations due to disease.

These changes are tentatively classified according to the tracings and independent of the stimulus used. Thus the chief changes to be noted in the cardiac curve are:

1. Increased rate.
2. Decreased rate.
3. Increased amplitude of contraction, height and width.
4. Decreased amplitude of contraction, height and width.
5. Rise of curve from base line, the height of the contraction remaining unchanged.
6. Rise of curve from base line, the contractions increasing in height.
7. Rise of curve from base line, the contractions decreasing in height.
8. Fall from base line.
9. Summative or tetanic effect, two or more contractions running together before a return to the base line.
10. Extra contractions.
11. Refractory periods or inhibitory pauses.
12. Disappearance of dicrotic pauses.
13. More than one notch in the individual contractions.
14. Any other change noted in the foregoing.
15. Quantitative estimation of systolic, diastolic, and pulse pressures taken intermittently or by some continuous method.

The more important variations noted in the respiratory tracing are:

1. Increased rate in smooth curve or contraction wave.
2. Decreased rate in smooth curve or contraction wave.
3. Increased height and width of plain curve.

4. Decreased height and width of plain curve.
5. Increased rate and increased height of plain curve.
6. Increased rate and decreased height of plain curve.
7. Decreased rate and increased height of plain curve.
8. Decreased rate and decreased height of plain curve.
9. Composite plain curve or any mixture of elements of the plain curve.
10. Increased rate of notched, serrated or tremulous curve.
11. Decreased rate in notched, serrated or tremulous curve.
12. Increased height and width of notched, serrated or tremulous curve.
13. Decreased height and width of notched, serrated or tremulous curve.
14. Increased rate and increased height of notched serrated or tremulous curve.
15. Increased rate and decreased height of serrated, notched and tremulous curve.
16. Decreased rate and increased height of notched, serrated or tremulous curve.
17. Decreased rate and decreased height of notched, serrated or tremulous curve.
18. Composite plain curve or any mixture of elements of the notched, serrated or tremulous curve.
19. Composite, plain, and serrated curve.
20. Inhibition or an arrest of plain curve.
21. Inhibition or an arrest of notched curve.

*Classification Procedure.*—A formula to be inclusive must include groups I, II, III, IV, V, VI. However, groups IV, V, and VI refer to experimental situations, *i. e.*, whether the experimental stimuli are real or artificial. In many cases in the study of pathological types such as patients suffering from endocrine unbalance, epilepsy or drug addiction, records were secured with no experimental stimuli. Here the reactions are classified in their respective pathological groups. In one group, the records of 232 epileptics will be filed although these records will be subdivided according to whether the etiology is of traumatic, cardiovascular, idiopathic, or renal origin. In another, will be grouped records of drug addicts showing the graphic effects of the administration of drugs; in still another will be grouped the records of cretins and mongolian idiots. At present the pathology is indicated in the formula although there may be no apparent direct bearing upon the graphic record.

Ordinarily, in deception work or in the experimental study of the emotions the subjects fall into normal groups, but in criminal investigation all types of subjects are encountered. In other cases the aim is to secure respiratory and cardiac tracings of all of the

pathological types possible, whether the subject is a bed-ridden heart case or in a ward for the criminal insane. Thus in some cases records were secured from subjects in alcoholic stupor or dying from drug poisoning, etc.

After the classification and filing of sufficient records, necessary changes can be made from time to time and the factors found by experience to be unessential can be dropped or new ones added. Whenever possible, effort has been made to correlate experimental changes with any underlying pathology or physical factors present. Thus the records of individuals will not only differ according to the physiological and pathological factors, but these in turn may determine the extent to which the records will vary with the experimental tension.

So far as possible individuals will be grouped and classified according to their records, both when free from tension and when responding to tension. These groups will depend upon actual factors present and although the arrangement may be somewhat arbitrary, for the convenience of classification, subjective factors are eliminated so far as possible. The individuals are classified and subdivided as they fall into those objective groups in which the polygraphic records not only differ, but also where objective differences are found by laboratory and physical diagnostic methods.

In some instances where no stimulus has been given it has been possible to predict from an inspection of the curve how an individual will react when under tension. Thus in some cases individuals with hypothyroid deficiencies may respond somewhat differently from those in whom there is a hyperthyroidism. Again the possibility of sex differences must be evaluated as well as all other effects. The record of heart block may differ from that of arteriosclerosis, and for that reason it is important that pathology when present be recognized, especially in high-tension cases. Thus a person with high tension, such as that due to old age, alcohol, etc., should not be subjected to the same emotional tension as is possible in the case of the normal individual. Therefore, whenever possible, it is best that the polygraphic examinations be supervised by examiners skilled in physical diagnosis and therapy.

Physiological and pathological factors, as recorded by polygraphic technique, may assist in the study of personality types; for certainly any pathology present must be included in any adequate

evaluation of personality. The polygraphic method affords an objective attack, and is free from the objections operating in the subjective personality-rating methods. In the subjective rating-scale methods the interpretation of the rating is very elastic, and also varies considerably from examiner to examiner. These methods have been tried for several years and have been abandoned by some as being too unsatisfactory. Intelligence ratings alone are also inadequate as a complete study. The physio-pathological method is being used in the classification of hundreds of records secured by the writers under varying conditions. In studying the emotions, as during a deception test, or when an attempt is being made to examine the individual, but one interview or examination may be possible, and therefore all of the controls and experimental conditions must be secured during that one interview. Under such conditions the polygraphic method seems to the writers more promising than metabolic determinations such as salivary changes, or as the mensuration of the sugar or phosphorus when these are used alone. These methods cannot always be controlled sufficiently. If used, carefully standardized diets must be followed if one individual is to be compared with another. Instead of correlating urinary changes, etc., with subjective criteria as necessitated in defining such terms as "genius," "ability to rule," etc., it was thought possible to compare directly objective records of individuals when placed under tension, and to see if individuals can be grouped on that basis. This has been done by the writers in some cases in criminal investigation where the experimental tension was real. Just how far it may be deemed advisable and how practical it may be to group individuals on the basis of their physical reactions, as recorded by polygraphic records, can only be ascertained from the analysis of thousands of records, secured from individuals in civil life and in institutions of all types, including the criminal groups.

At present an analysis is being made of the records of 400 inmates of the Southern Illinois Penitentiary, at Menard. Most of these denied their guilt. Records were also obtained from some 250 inmates of the State Hospital at Dixon. Here epileptics, mongolian idiots, microcephalics, macrocephalics and cretins were chosen. In addition, records were obtained from paretics, præcox cases with paranoid delusions, and psychopaths who malingered.



The latter records were obtained with reference to deception. All of the subjects were inmates of the hospital for the criminal insane at Menard.

Such questions as the following are debated points: Is it possible to differentiate the records of psychoneurotics from those of mildly depressed patients, or from those of persons suffering with organic disease, or from those of patients suffering from schizophrenia or even from those of normal individuals? Is it possible to tell by such records if the subject is malingering? Are the claims made by some valid, that there are specific respiratory records by which it is possible to diagnose various types of dementia præcox? In the latter question, we are referring to the old classification still found in many textbooks. Is there any one reaction which can be diagnosed solely by a study of cardio-respiratory changes? Is there necessarily a specific cardio-respiratory response by which one can differentiate various emotional states and thus accomplish what psychologists in the past have indicated as possible: *i. e.*, to show that the reaction for a disagreeable stimulus is different from that of an agreeable one; that fear, anger, surprise, etc., can be positively differentiated? Apparently many workers interested in these questions have started with a given thesis or question in mind and have attempted to prove this one point alone, ignoring the fact emphasized by Adolf Meyer that personality is not a constant entity but is ever changing, and is made up of various levels which he describes in his personality courses on psychobiological integration. Thus a group of individuals may react differently in response to the same stimulus because of the various interrelations of the different levels. Again the same stimulus repeated may evoke different responses in the same individuals, possibly due to adaptation, fatigue, etc.

Helga Eng, writing of her studies with children and adults, describes in her conclusions the physiological accompaniment of various mental states as follows: "Attention emotion: fall in volume curve, decrease in pulse height, retarded pulse, retarded respiration. Activity emotion: rise in volume curve, increase in pulse height, accelerated pulse, accelerated respiration. Displeasure: fall in volume curve, decrease in pulse height, and generally (variable with a few displeasure emotions) accelerated pulse, and retarded, even, and irregular respiration. Pleasure: rise in volume curve,

increase in pulse height, and generally (variable in a few pleasure emotions) retarded pulse, accelerated and shallow breathing. Depression: fall in volume curve, decrease in pulse height, weak, retarded pulse, retarded respiration. Excitement: rise in volume curve, increase in pulse height, pulse generally accelerated occasionally irregular, respiration often accelerated occasionally irregular."

In contrast to the definiteness and positiveness of these results, we feel that there is often more lability of effect. It is very difficult in a laboratory study of emotions to be sure of the stimuli. In reality, when we work with a genuine fear situation in an individual there may be a fall in blood pressure accompanied by an exhilaration, but the opposite may occur in another individual; and if the stimulus is repeated different effects sometimes occur in the same individual. In depressed patients there may be low volume in tension which, however, alternates with considerable vasomotor instability and considerable tension if the patient be followed through a 24-hour period. Some of these periods of increased tension are shown by increased pulse rate, amplitude, etc., and may be associated with panics or other psychogenic factors. The records of some agitated depressed patients so closely resemble records of patients in a manic excitement that it would be impossible to differentiate them. Several investigators speak of hypotension associated with psychoneuroses, chronic exhaustive states, etc.; we have often found this but the relation is not constant nor necessarily diagnostic. Similar findings often appeared in our examination of over 400 records secured from low grade mental defectives with associated poliomyelitis, endocrine disturbance, cretinism, tumor of the pituitary, mongolism, microcephalic condition or epilepsy. Although many of these records are quite similar, we have so far found no one diagnostic trend or pattern, and there may be variations depending upon the specific etiological factors. Thus, while many of the deteriorated epileptics have curves which are rather similar and which usually show hypotension, yet at times there are marked variations and instabilities depending upon specific cardiac or respiratory disturbances and also upon the relation to seizures.

The records of cretins were often very regular being associated with low tension, and simulating records of catatonic stupors as well as those of normal individuals who are termed very phleg-

matic. Records from individuals suffering from a hypothyroid condition may often differ from those of subjects with increased metabolism or mobilization of energy as in the case of hyperthyroidism. Marked vasomotor instability may be seen in the low-grade imbecile as well as in the neurotic and in the various psychoses. So far we have not found any one type of record that could be regarded as diagnostic, but it is thought that there may be greater irregularity in the abnormal types. This agrees fairly closely with the findings of Odegaard who studied psychogalvanic-reflex records of over 500 clinical cases in which he found no one pattern.

Pain is supposed to cause an increased tension, or increased high force blood pressure, etc., so much so, that Norris speaks of it as being of use in a test for malingering. He says, "Simulated pain usually does not cause an increase in blood pressure." Norris also adds, "In persons with normal sensibility the blood pressure, under the application of faradic stimulation to the upper side, rises from 8 to 15 millimeters.

Leonarde Keeler in a demonstration of a deception test (using the same principle as described above) at a meeting of the Chicago Medical Association,\* spoke on "The Practical Application of Emotional Changes." During this lecture he described 100 cases in which blood-pressure and respiration records were secured from mental patients at a veterans' hospital. He felt not only that the 50 records of dementia præcox could be differentiated from those of psychoneuroses, organic psychoses, etc., but that he had found at least three reaction types of records which could be used to differentiate the older præcox classifications. He used these nosological terms, "simplex," "paranoid," "catatonic," and, as in the case of Syz, he emphasized chiefly the respiratory changes. Syz had pointed out that the respiratory curves of some forms of præcox showed more regularities. Keeler reported that there was a very regular respiratory wave in the catatonic, a periodic sort of respiratory deviation with a deeper respiration at definite intervals in the paranoid form, and a more irregular or mixed type in the hebephrenic.

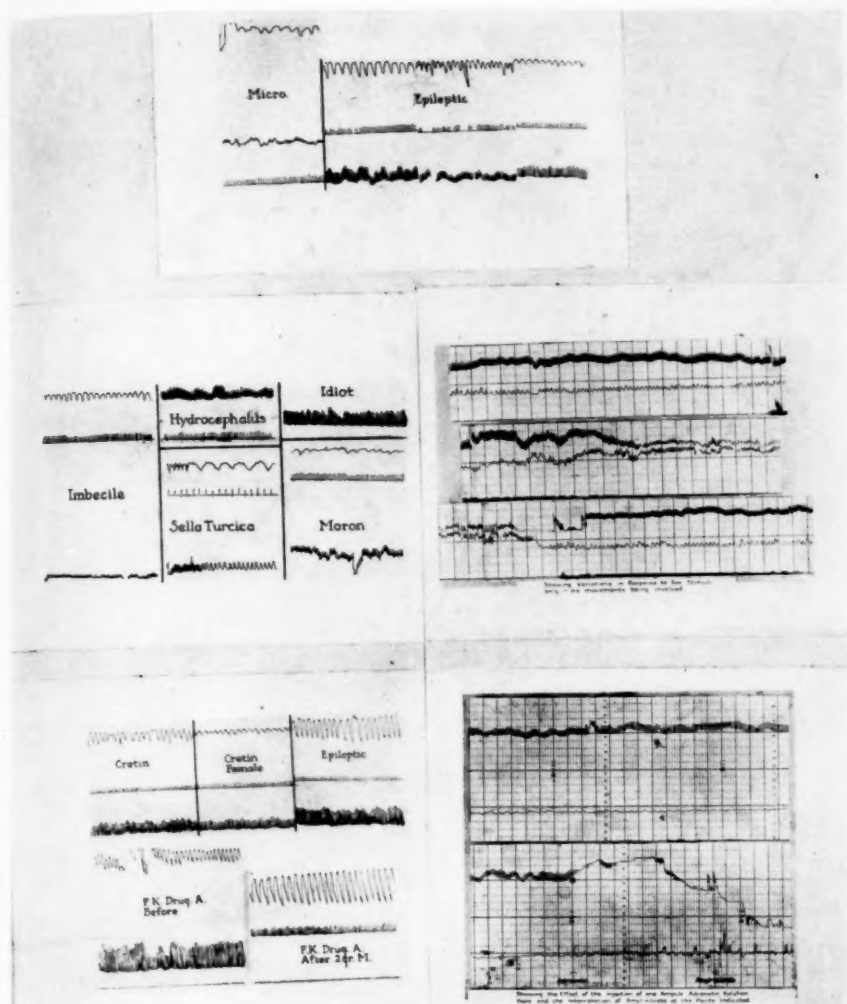
Of our pathological material including over 500 records we feel that no one pattern can be considered diagnostic of a given patho-

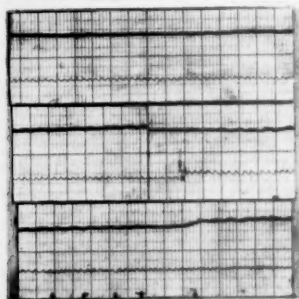
\* Bulletin of the Chicago Medical Association, XXXIII, January 24, 1931.

logical syndrome aside from cardiac or respiratory factors as they indicate pathological physical conditions. We often found respiratory changes apparently associated with grimacing, with the hallucinating period, or, in cases of excitement the record would often become irregular apparently depending upon the stimulus and preoccupations.

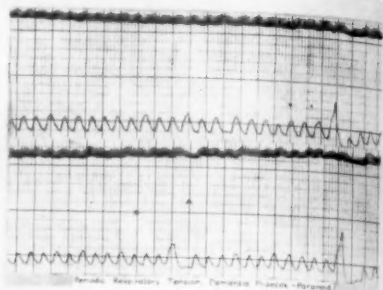
In a group of 50 schizophrenics recently secured no one pattern could be said to identify Keeler's subdivision, when use was made of the older classification labels. Of 27 cases of paranoid *præcox* there were 12 very irregular respiratory curves, 7 periodic and 8 regular ones instead of 27 periodic ones. Again, of 9 hebephrenics there were 4 regular and 5 irregular ones. Of 7 catatonics 4 were regular and 3 irregular instead of all being regular. By following one individual over a period of hours all possible variations could be secured without using external stimuli, even if the patient were in a catatonic stupor. Using Dr. Meyer's concept one can understand variations in the record, allowing that the existing condition could depend upon the degree of withdrawal rather than exemplifying arbitrary types of the same process. Variations could result from spontaneous causes, which had no connection with the external stimuli. However, in many schizophrenics there was low tension, with marked vasomotor instability, which was associated with respiratory irregularities and in one case with epitaxis. In some cases there were low basal metabolic rates, endocrine disturbances, amenorrhea, etc.

In all cases of supposed stupors (schizophrenia at any stage) marked variations in emotional tone were indicated by general cardio-respiratory changes, aside from the spontaneous changes, and could be elicited by appropriate stimuli. The usual type of questionnaire was not successful but some stimulus which served as a complex situation for the subject was selected from his history. A record from a case of depression might change slightly, or in agitated depression, very suddenly. These spontaneous fluctuations may occur irrespective of external stimuli. Adherents of the theory of the somatic etiology of the schizophrenic processes have argued that these reactions speak for a physical causation, assuming the possibility that some central process actually prevents the patient from speaking although all the time in contact with his environment. In support of this view they cite such introspective

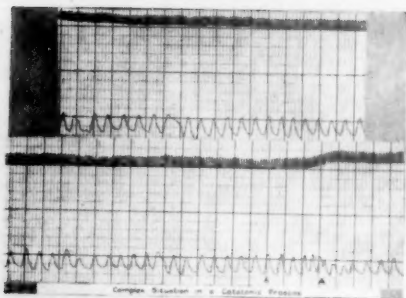




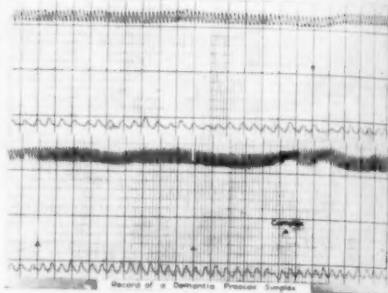
Circulatory Disturbances in Compton Subject "Schizophrenia" in a Catatonic Phase. Single lead shown as representative indication of Tension.



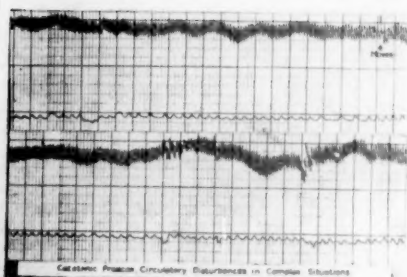
Circulatory Disturbances in Compton Subject "Schizophrenia" in a Catatonic Phase. Single lead shown as representative indication of Tension.



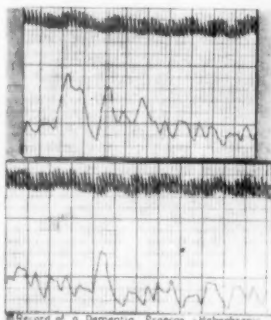
Circulatory Disturbances in Compton Subject "Schizophrenia" in a Catatonic Phase. Single lead shown as representative indication of Tension.



Circulatory Disturbances in Compton Subject "Schizophrenia" in a Catatonic Phase. Single lead shown as representative indication of Tension.

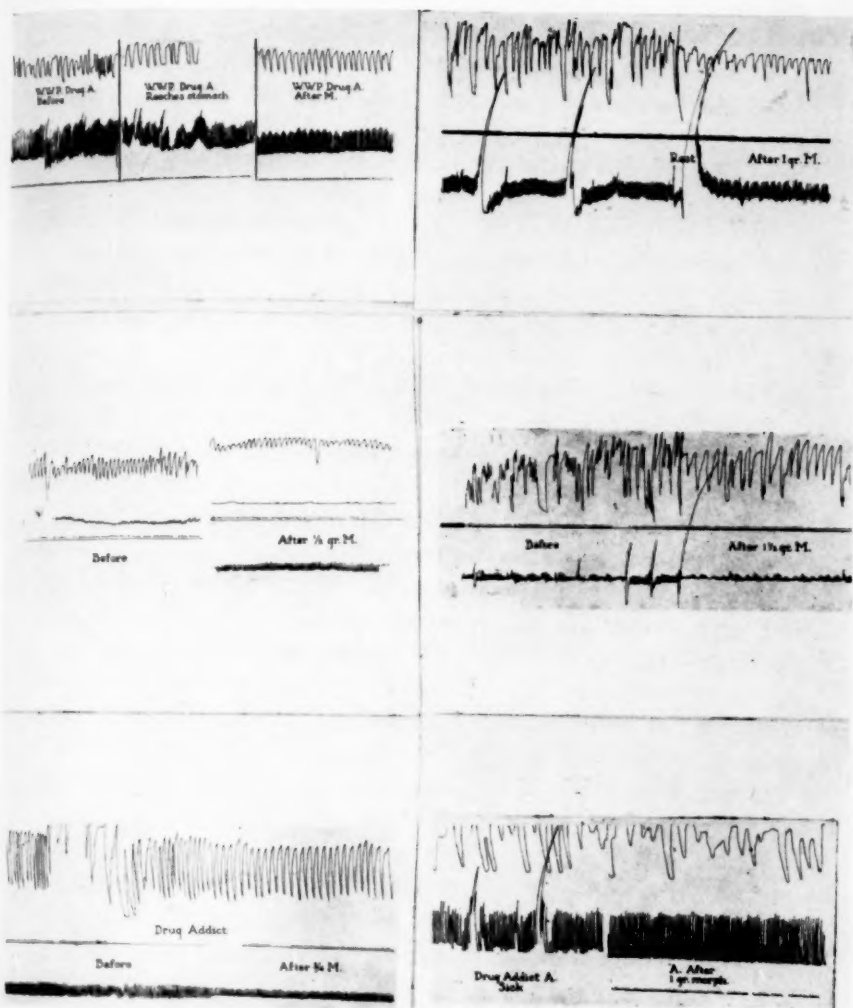


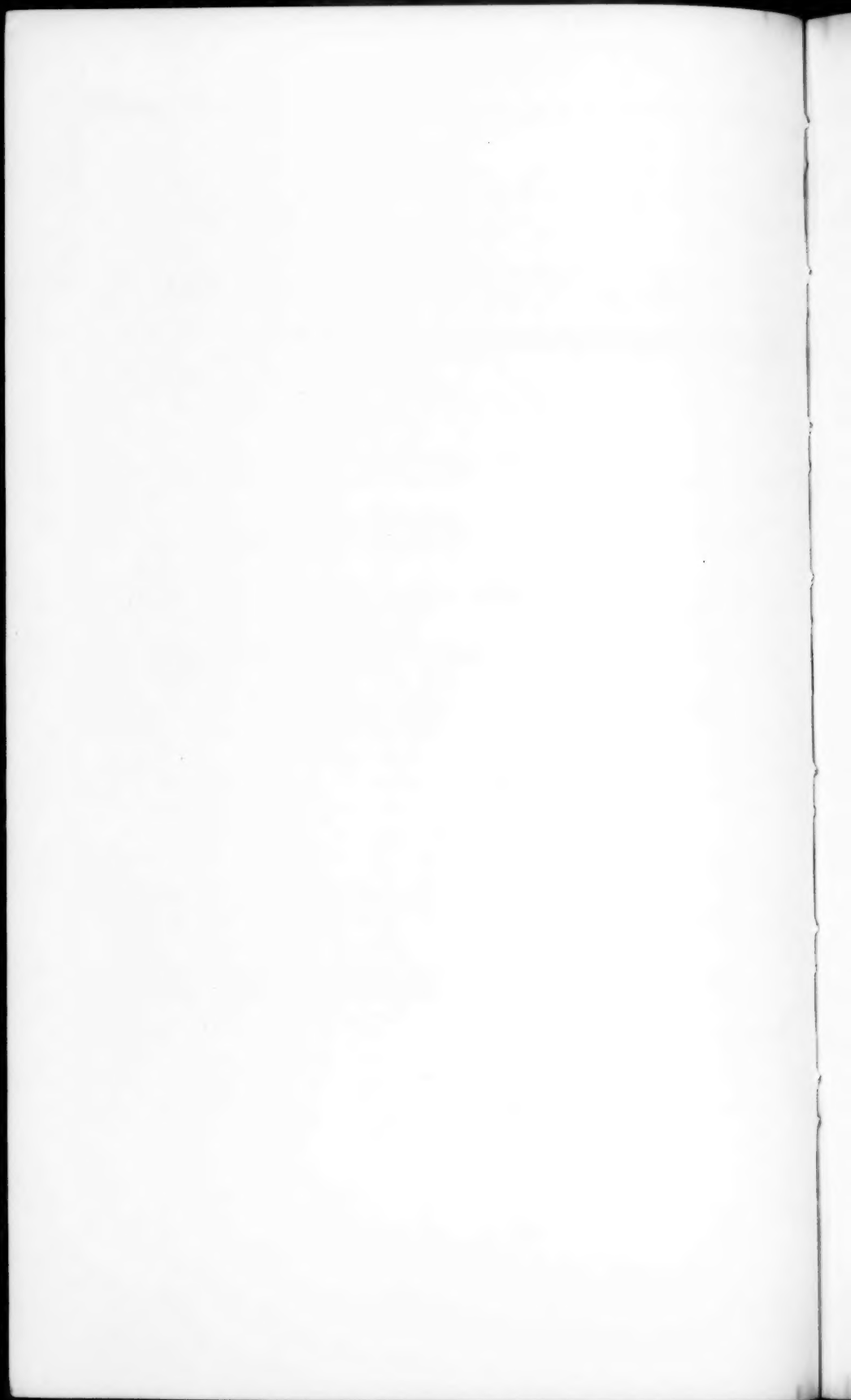
Circulatory Disturbances in Compton Subject "Schizophrenia" in a Catatonic Phase. Single lead shown as representative indication of Tension.



Circulatory Disturbances in Compton Subject "Schizophrenia" in a Catatonic Phase. Single lead shown as representative indication of Tension.







data as the catatonic patient not infrequently gives after he emerges from the stupor, for example when he says that he wished to talk but was unable to do so. As further evidence they refer to the sporadic beneficial results of drugs, cocaine, carbon dioxide, sodium amytal, diol, etc., which may temporarily bring the patient into rapport. On the other hand, adherents of the theory of the functional etiology of the disease have an opposite explanation. The more generally accepted viewpoint, however, is that we may have a combination of both factors, the somatic factor being included in the so-called constitution. In studying the constitutional factors some observers have used drugs, *i. e.*, adrenalin, pilocarpin, bulbocapine, mescal, as well as the endocrine extracts. Experiments are being conducted especially with schizophrenics, post-encephalitics, and those suffering from thyroid disturbances. Basal metabolism studies have also been conducted with a view to ascertaining whether these respiratory changes which are often noted in schizophrenia are due to psychogenetic stimuli or represent metabolic disturbances.

The literature abounds with diametrically opposed concepts of the schizophrenic process. One group over-emphasizes the analytical approach, while another stresses the organic. Adolf Meyer's concept represents a conservative approach, and by allowing for the "constitutional background" and for the physical levels of integration, he neglects no possible etiological factor while at the same time emphasizing psychogenetic factors. Schilder represents a fusion of the organic and the analytic approach. At the present time many workers from the laboratories of physics and biochemistry are attempting to investigate the somatic factors.

One cannot fail to note the tendency in some quarters to neglect the constitutional side and over-emphasize the psychogenic factors in catatonic stupors, and so-called mixed psychoses. In an attempt to understand constitutional etiological factors reference is not made to Kretchmer's work alone, which is at best incomplete, but the concept may be widened to include all of the somatic factors, physiological or pathological. A careful scrutiny of accurate histories of clear-cut schizophrenic cases reveals that the so-called "introverted" or "shut-in" personality does not necessarily precede a psychosis in many cases, and that previous to the psychotic

symptoms, one often finds no evidence upon which to predict accurately a schizophrenic breakdown.

Too often the physical findings in schizophrenic patients, such as pupillary disturbances which may simulate any organic disorder involving the pupils, vasomotor changes, catalepsy, endocrine disturbances, amenorrhea, weight variations, etc., are explained as a result of psychogenic factors. In one case of catatonic stupor there were periodic breathing attacks associated with epistaxis. In this particular case none of the physical levels had been investigated but much attention had been focused upon psychogenic factors. Some observers might say that the result of the work with drugs, oxygen, etc., in temporarily interrupting a catatonic stupor, or in the "sleep treatment" of acute schizophrenic patients (where recoveries have been reported), could be interpreted as representing an interruption of autistic thinking. Others would use these findings to support the organic theory of the disease.

The study at present being undertaken is focused more upon the physiological changes which includes biochemical studies of the "constitution" in schizophrenia. Because of the present ignorance of the endocrines with all of their inter-relationships and the multiplicity of factors concerned, one cannot expect to find one simple physical factor or one treatment which will hold good in all cases. One cannot help emphasizing the importance of disturbances of the sympathetic system, whether primary or secondary, and question the rôle of the adrenals, looking deeper for the explanation, as Bancroft has done with his hypothesis of a disturbance of colloids. In this sort of study we are dealing with possible causative factors and not merely labeling the results and symptoms. As pointed out, the respiratory records of schizophrenics show many irregularities. These need not be due to psychogenic factors but could be an indication of oxygen disturbances.

In connection with the cardio-respiratory studies with the next group of schizophrenic patients, the following factors will be included in addition to the usual complete physical examination, and other tests which may seem indicated in individual cases: basal metabolic rate; blood and urinary findings with special reference to calcium, potassium, and sugar; x-ray of the sella turcica; examination of the capillaries; tests with pilocapine and adrenalin.

Many records of the normal groupings tend to approach or show similarities to those of abnormal individuals. It may be found that this fact is due to common denominators, such as deficiency or excess of thyroid, or some cardiac difficulty, or a predisposition to spontaneous daydreaming. Aside from the physiological studies records are to be secured of patients receiving at first no stimulation, and later subjected to psychogenic and mechanical stimuli. This method will be used as a check against the general laboratory experiments.

A few representative records are shown (Plates 5, 6 and 7).

#### CONCLUSION.

1. A polygraph technique is of material aid to psychiatrists in the detection of deception.
2. This technique is also useful in securing rapport in a child who has been resistant to the usual approach. These resistances may often be detected and uncovered during the examination.
3. Questionnaires designed for a study of resistances or traits, which the patient is usually reluctant to express, should be checked for their veracity by some objective method. The continuous method of graphic registration is to be preferred since by the discontinuous method, such as the use of Tycos, the changes occurring between the recordings of the pressure may be lost. Some objective criteria are especially necessary in the study of sex traits or suspected sex experiences, as the patient, especially the child, is inclined to be secretive upon this subject.
4. Physical criteria, such as those utilized in this investigation, are of value not only in the study of the usual type of deception, in which children or patients attempt to conceal some delinquency, but in investigating the deception of the psychoneurotic type of individual, child or adult, who may be attempting to convince himself that he suffers from certain ailments or that certain events have not happened. The technique is also valuable in the study of the alleged hallucinatory experiences.
5. The use of the polygraph technique as outlined may prove just as effective in many cases as long drawn out psychoanalysis and where Freudian analysis is contraindicated.

6. Although as yet, after a study of 2,000 records including both normal and pathological individuals, no definite reaction pattern is found which is finally diagnostic, it would seem that some records were more irregular in cases of psychopathology or actual cardiac-respiratory pathology. This agrees with Odegaard's findings in psychogalvanic reflex studies.

7. The energy metabolism or mobilization showed considerable variations according to various records. These indicated some association with pathological factors or with physical factors, and might be used as a basis for convenient groupings. While as yet none were found to be positively identified by the records alone, suggestive trends seemed to be indicated.

8. There was some similarity between records of exhaustive states, chronic illness, catatonia, and cases of hypothyroid function, but there were no clear-cut lines of identification.

9. Interesting records have been secured with drug addicts showing the contrast between reactions following injections of morphine and those of the same subjects when deprived of the drug for some time. The changes noted are not entirely psychological but have a physiological basis. It is interesting to note the marked change in personality. The first warning of change was a constant deviation in the record when most of the subjects claimed that their first sensation as a result of the drug was a sensation in the stomach.

10. The study of respiratory and cardiac records together with the utilization of drugs and analytical methods, offers a possible means of further study of the schizophrenic processes.

11. Certain trends appear in these cardio-pneumo-psychograms which might be of service in personality analysis and classification.

12. Cardio-pneumo-psychograms seem to afford a very simple and often the most satisfactory method for studying complex situations and problems involving personality.

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#### DISCUSSION.

DR. FRANCIS E. DEVLIN (Montreal, Quebec).—*Mr. President, Ladies and Gentlemen:* I am sure that the paper to which we have just listened has held your attention and excited your interest.

It is an effort to approach the individual in the laboratory. The attempt by means of the film to establish the mendacity of an individual is both novel and original and would prove of great value to those of us, who, in our courts, are called upon to deal with difficult mental problems. Of course, you notice for the moment the claims these gentlemen make are very modest. They have shown us their films on the screen and they believe that they can deduce certain facts from the same. Naturally, before anything practical might be assumed from their findings, much more study and investigation and comparison will have to be done and before, as they say themselves, positive assertions can be made. I certainly congratulate these gentlemen. I trust they will go on with their work and collaborate with many others so that later on, inference may be drawn from a wealth of undisputed facts.





## PSYCHOLOGICAL CHANGES IN NORMAL AND AB-NORMAL INDIVIDUALS UNDER THE INFLUENCE OF SODIUM AMYTAL.\*

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The psychological and physiological effect of drugs administered to the human organism is of eminent interest for the psychologist and the psychiatrist. In no other field does it seem more important for the psychologist on the one hand and the psychiatrist on the other to do their work with sufficient exchange of ideas and methods.

The study of drug action has been approached by psychologists mostly along the lines of measuring and testing possible effects produced by drugs on certain intellectual functions; psychiatrists on the other hand have applied drugs to the organism for therapeutic purposes, making statistical studies of the percentage of apparently successful treatments, but generally not attempting a psychological analysis of the effect produced by the drugs.

A reconsideration of the effects of certain drugs combining studies in abnormal and in normal individuals, seems to be indicated, particularly since the recent publications of Lorenz and Bleckwenn,<sup>1</sup> who reported striking therapeutic effects in serious psychotic conditions by the use of sodium amytal. These authors, as well as Solomon<sup>2</sup> in Boston, who confirmed their findings, claim that the improvements observed were the result of the prolonged narcosis resulting from large doses of this drug. This agreed with observations of German psychiatrists who had found beneficial results from prolonged narcosis with somnifene, which like sodium amytal is a derivative of barbituric acid. It was uniformly reported that after a period of profound sleep, produced by the injection of a certain amount of such drugs, patients who had been for months in a catatonic stupor or in deep depression,

\* Read at the thirty-ninth annual meeting of the American Psychological Association, Toronto, Ontario, September 10, 11, 12, 1931.

began to talk, to act in a quasi-normal fashion, and to show a steady improvement if such treatments were repeated.

The beneficial influences of long periods of sleep as produced by the drug were held responsible for the good results. A "central anesthesia" giving the patient time to gain distance from his conflict situation was suggested by Klaesi<sup>8</sup> as the explanatory principle.

It appeared to us that the explanation offered by psychiatrists was not based on a sufficiently sound study of the psychological changes which can be produced by the application of sodium amytal. Suspecting that sleep cannot be the only curative agent, we gave the drug in a dose much smaller than that necessary for the production of sound sleep, using only three to four grains. Our first experiment showed that this small dose of the drug is potent enough to effect a profound change in the psychological activities of certain patients belonging to the catatonic and depressed groups.

This observation led to a more systematic investigation of the results produced. It seemed indispensable to compare the effects of the drug in normal and in abnormal individuals. So far we have studied thirty patients and six normal individuals. Most of the patients belonged to the group of catatonic or depressed stupors. Very little was known about the thought content of the subjects before the administration of the drug. The normal subjects were colleagues from the staff and graduate students in psychology trained in introspection.

The procedure of the experiment was as follows: The patient or the subject was placed comfortably on a couch and a solution of crystallized sodium amytal, containing one grain and a half in one cubic centimeter of distilled water, was injected intravenously at a speed not exceeding the entrance of one grain into the body during a period of one minute. The patient had been confronted with a series of questions pertaining to his name, age, to the situation responsible for his being brought to the hospital, to his present problem, and to his outlook for recovery. After the injection of two or three grains, and when the first changes were noted, the questions were repeated slowly, and the answers obtained were taken by protocol.

The physiological state with reference to the vascular system and to the neurological system was registered. The sensory threshold was determined for touch and pain stimuli before and after the intake of the drug. Observations were made with reference to the subject's emotional attitude. Facial expression, inflection of speaking voice, kinetic state, and vasomotor condition were taken into account.

In reporting our findings we shall first present a description of a few typical experiments with patients.

CASE I.—A 38-year-old woman, mother of three children, supposedly happily married, was admitted to this hospital, being mute, unwilling to take food, pacing the floor in an agitated fashion, muttering to herself in an inarticulate voice. She stayed with us for four weeks without any change in behavior and without giving us any communication about her experiences. The history obtained did not give any evidence of difficulty at home which might have precipitated her psychosis. The patient was given four and one-half grains of sodium amytal in the manner described above. Two minutes after the beginning of the injection she lost the suspicious and apprehensive expression in her face. She appeared relieved, looked around in an interested way, and spontaneously asked the examiner, "Where am I? Who brought me here? Where are my children? Can I go home?" She reported that something terrible was pressing down on her, that she had a tremendous fear of impending danger, that she heard God's voice talk to her, that she was in a coffin which was prepared to take her to hell, and that she had a profound feeling of guilt with reference to autoerotic habits of her early adolescence. The state of friendly communication lasted about two hours, after which she gradually crept back into the condition present previous to the experiment.

CASE II.—A 30-year-old man was admitted to our hospital because of his bizarre behavior at home. For the last two months he sat around without talking, watching everybody who entered the room with a fearful expression on his face, and stared into space. This patient was extremely resistive to the admission routine. He fought several attendants when a bath was prepared for him. The necessary examinations, such as blood count, were carried on with great difficulties because of the patient's combativeness. He appeared apprehensive and suspicious and unwilling to say a word about the reasons for his fears. In the course of the experiment this patient became friendly, pleading for protection, reaching out in a warm emotional attitude to the examiner and told at length about his fear that an operation was being prepared to deprive him of his sex organs. The instruments for blood count, even the table silver given with the meals had appeared to him as instruments being put in place for the operation. For two hours this patient was friendly and communicative. He was willing to eat and to do anything that was asked of him. Then the effect of the drug began to cease and the patient became as apprehensive, uncommunicative, and suspicious as before.

CASE III.—A 38-year-old man was admitted because of marked depression and an inability to speak. Whenever he was approached with the request to state what was worrying him, he would begin to produce inarticulate, barking sounds which could not be understood. The condition had been precipitated after a period of increase in religious activities. For several months while this patient was in the hospital it had been impossible for us to obtain any communication of significant facts as to his recent past. Finally he was given sodium amytal, and under the influence of the drug he related with many tears that as a boy he had had sexual plays with animals, that shortly before the onset of his present illness he had read in the Bible that God is going to punish by death persons guilty of such sins, and that shortly afterwards he had had a dream in which the abnormal activities of his boyhood were repeated. A marked feeling of guilt had developed; shame and embarrassment prevented him from speaking. This patient felt a permanent relief after the application of the drug, and from then on was able to discuss in a less emotional manner his worries, and soon afterward was discharged as recovered.

These three cases must be sufficient to indicate the type of thought content offered under the influence of the drug. It is evident that in each patient the specific life situation precipitating the psychosis is different, that therefore each patient's fears and worries are different. It is obvious that material communicated under the influence of the drug can be used in attempts to break through the apprehensive or protective wall erected by the patient during his psychotic condition.

In all our 30 patients we found a striking change from a resistive, seclusive attitude to friendly and emotionally warm communication, with a feeling of wellbeing and desire to retain the condition produced by the drug. It must be emphasized, however, that the drug had no influence upon the structure of the delusional ideas and hallucinations present before the experiment. The abnormal thoughts hidden before were communicated after the drug administration; the emotional attitude under the influence of the drug was such as to allow a discussion of the reasons for fear and withdrawal from the outside world.

The observations with normal individuals were very uniform. All of our six subjects felt definite changes in their own emotional attitude. There was a feeling of wellbeing and serenity, a desire to communicate, to be every person's good friend, a grateful appreciation for the kindness and goodness of the persons of their

environment, a willingness to speak about very personal problems usually not spoken of to strangers.

There was the conviction that one might do almost everything now. One might go dancing, enjoy oneself if one wanted to, but one does not do it at the moment; the anticipation of future pleasant activities and experiences is evident without any effort or drive to carry out such plans immediately, and, therefore, without any increase in psychomotor activity. There is no distortion of objects other than a slight blurring of vision, occasionally double vision. No hallucinations, dreamlike experiences, or apprehensive thoughts, no trace of fright, only the feeling of relief and freedom. A rather consistent phenomenon was underestimation of the time elapsed during the experiment. One patient for example estimated that the time of the experiment was 10 minutes, when the actual time had been two hours.

This type of emotional attitude was uniformly present in our six subjects. In two of them the subjective changes were very mild. We quote some of the statements taken in protocol:

It's funny I am just telling you things which I wasn't going to tell you. . . . No matter what comes to my mind it wants to be expressed too. I never felt so easy as I do now. I don't think I ever talked this way before. . . . I would be lost if you asked embarrassing questions. . . . I catch myself making remarks I mustn't say. . . . I feel like going and having a good time. . . . I feel like saying all sorts of things. The words kind of just come out of my mouth. . . . It's funny how much a person enjoys this. . . . I know what I am saying and yet I don't know. The words just go rambling on my tongue. The little guardian just isn't there. . . . Things don't matter just now, I feel different from my usual self. . . . I keep talking and talking and think, maybe I better not, but nothing makes much difference. . . . I feel silly. . . . Feel I could dare things I never dared to do, feel I would do things I never meant to do. . . . All my reason says to shut up, but I feel like talking and taking a chance. People are so funny, I am too. . . . This is not like feeling drunk on alcohol. I would get sick and blue . . . now I am philosophic, I can't be worried with anything now. . . . Everything is going to be all right. . . . I feel a great desire to go places and see people. I want to be free and I am free. . . . I want to tell my friends how happy I am. . . . I feel like I am fifteen years old, sort of half grown up.

Individual differences manifested themselves in talkativeness in one subject, more quiet serenity in other subjects. The shifting

of the emotional state along the depression-elation scale in the direction of elation was quite evident in each case.

The personal matters communicated under the drug influence were important enough to make one cautious about having the experiment go on with too large an audience. After the completion of the experiment, followed by a few hours sleep, some subjects were somewhat worried about their utterances and were apt to believe they might have said more than actually had been conveyed. The recollection of conversation and events during the stage of drug action is surprisingly good as can easily be judged from the retrospective reports handed in by the subjects.

The neurophysiological changes observed in both the normal and abnormal groups were quite consistent. There was a marked speech defect, a mydriasis of the pupils, decrease in blood pressure from 10 to 20 per cent of the initial level, often a decrease in heart rate, a vasodilatation, particularly in the face, nystagmus, a mild degree of double vision and some ataxia. A marked increase in the threshold for pain stimuli was noted.

In discussing our observations we desire to state that we do not think it is of any scientific value to immediately introduce conceptions of brain physiology into the hypothesis accounting for our findings. Solomon<sup>4</sup> recently has claimed that sodium amytal narcosis, just as oxygen deprivation in the central nervous system, leads to temporary depression of the activities of the cortical cells with a subsequent increase in metabolic activities, which leads in turn to a temporary speeding up of those cell activities which the author holds to be insufficient during states of psychotic stupor. The first objection to be raised against such a hypothesis is that we have no proof for the supposition that in the state of "stupor" with little or no motor output the brain activities are also reduced. It is quite possible that, on the contrary, a great deal is going on in the perceptive field while the patient outwardly appears quiet and inactive.

Secondly, the depression of cell activities by prolonged narcosis, which was supposed to be the prerequisite for the subsequent lucid intervals, is shown by us not to be necessary for the production of the psychological changes described in this paper. A minute amount of drug, which in normal individuals produces but little



psychological change, is sufficient to lift the pressure which inhibits the stuporous patient from communication with others.

It seems to us that a purely psychological description of our findings will give sufficient provisional explanation. We can say the following:

Patients, as well as normal individuals, under the influence of the drug are freed from *that* factor which prevents them from communicating their thoughts and from reaching out for human contacts. We know that the communication of conscious contents, as well as the natural *naïve* attitude towards other persons, is inhibited by the repressive results of early conditioning, mainly with reference to social conventions and moral requirements. We must assume that the drug does not have any specific effect, such as influencing the activities of diseased cortical cells, but that it removes certain inhibitions which without the drug had prevented the individual from manifesting a type of activity which is in conformity with his more primitive tendencies. The effect of this drug, therefore, is indirect and not specific. As compared with alcohol,<sup>5</sup> cocain,<sup>6</sup> and ether<sup>7</sup> which can also be shown to produce marked changes in psychotic conditions, there is a release in inhibition for words rather than for action. With cocain, alcohol, and ether we find an increase in psychomotor activity and impulsive outbursts along the lines of the instinctive tendencies characteristic for the particular person.

The type of relief from certain inhibitions which is offered by sodium amytal and the very similar luminal, is shown in the behavior of a patient addicted to luminal, whom we studied recently in our hospital. This young woman was admitted with a diagnosis of a brain tumor, because of staggering and a number of other neurological signs. During our work with her, her symptoms gradually disappeared and were discovered to have been due to prolonged luminal intake. The further analysis of her condition showed the following:

Shortly before the onset of her symptoms she had met a man who appealed to her more than her husband. An attachment developed which she, being of high principles, did not approve of. She avoided occasions to see the man and tried to be as loving to her husband as possible. She developed, however a feeling of tension and dissatisfaction which was considered as nervousness. The doctor suggested luminal. After the intake of this drug, she felt not

only more comfortable, but also felt no particular conscience about meeting the other man, and felt no compunction in being fault-finding and nagging with her husband. When she entered the hospital, she spoke in unkind and depreciating words about her husband and could not find enough expressions to describe her dislike for him. With the ceasing of the luminal effect, her attitude towards her husband changed and when she had recovered she was as polite and loving towards him as she ever had been. Six weeks after her release from the hospital, feeling the old tension again, she began to resume her luminal treatment, with the result that again she was admitted to the hospital, scolding about her husband and desiring to leave him. After another period of treatment here the whole situation was worked out clearly, so that the patient left the hospital for the second time fully aware of the mechanism of her drug addiction and able to avoid it.

We venture to suggest that a similar mechanism holds for alcohol and cocain, as well as for most other drugs used as sources of pleasure.

It might be interesting to speculate in physiological terms, assuming that inhibitions arising from social conditioning are represented in the cortex, while instinctive tendencies of a more primitive nature find their representation in the basal ganglia and in the centers surrounding the third ventricle. We might then think of a mild depressing effect of the drugs mentioned above, applied to the cortex or of an increase in neurophysiological activities in the older parts of the brain.

In order to get some indication of the effect exerted by drugs upon the central nervous system we studied with Travis the latency period of the patellar tendon reflexes as recorded by the oscillograph. Travis<sup>8</sup> had found that alcohol, depressing cortical activities, leads to a decrease in the latency period, which is interpreted as removal of inhibition exerted by higher centers upon lower center activities. The normal subject examined with this method showed a similar change, as would be expected. The reflex time having been 21.0 Sigma before the intake of the drug, was 20.0 Sigma 10 minutes afterwards.

A catatonic patient, on the other hand, who showed a marked change in behavior under the drug influence, showed an increase of 3 Sigma over his normal reflex time, indicating that a different change in inhibitory forces had occurred.

The observations in this direction are not sufficient to allow any conclusion.

The main point in our present communication is that sodium amytal produces a marked change in the behavior of certain types of psychotic patients and a less pronounced change in the emotional attitude of normal individuals, on the basis of the release of inhibitions. It allows the study of the thought content of stuporous patients which was previously not possible, and gives us material which we can use in psychotherapeutic efforts.

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## CONCERNING EMOTION AS IMPULSION AND INSTINCT AS ORIENTATION.

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### I. NEED FOR PSYCHOLOGY OF MOTIVATION AS CORRELATE FOR LABORATORY STUDIES.

As an investigator whose contacts with psychiatric problems center in the chemical laboratory, rather than the ward, the writer's primary interest has been the study of patients as laboratory subjects. To do this most intelligently, however, it is first necessary to understand them as human beings. It would appear that this sort of human understanding has been furthest advanced by studies along instinctive lines; yet in trying to plan further chemical studies on emotion as related to instincts, considerable difficulty has been experienced in attempting to bridge the gap between the psychological theories in present use and the possibilities of objective report and verification. This observation does not, of course, constitute any valid criticism of the modern psychological developments in our field of study. These developments have been directed toward worthier objectives than the mere convenience of laboratory workers. The significant advance has been the growth and increasing use of a biologically oriented psychology of motivation, founded upon concepts of instinct and emotion rather than reason, and most dramatically set forth in the Freudian concept of unconscious wishes.

### II. RESTRICTION AND DEFINITION OF THE INSTINCT CONCEPT.

If there still persists any disagreement concerning the relative importance of the "rational" or "irrational" foundation of motives, I wish to avoid any misunderstanding of my subsequent remarks by stating here clearly that the "irrational" foundation (*i. e.*, emotion and instinct) appears to me the primary basis of motivation. Within that field, however, it seems to me desirable for research purposes to attempt a clearer delineation of concepts than is currently followed in psychiatric discussions, namely, to restrict

the term instinct to signify observable patterns of activity, presumably innate, and to formulate emotion as a general supplementary biological function rather than the psychic parallel of instinct. In attempting to formulate a workable theoretical basis for observational study, I have tried to combine Lloyd Morgan's \* general delimitation of instincts and Claparède's † functional view of emotion with the more elementary features of Shand's ‡ theory of sentiments.

In the sense here employed, an instinct or instinctive act is defined as a coordinated series of motions, recognizable as a reaction pattern, which is common at least within a species and is in general biologically useful but intuitively performed under the appropriate combination of external circumstances and internal, physiological state. Now human activities exhibit typically such a degree of modifiability as to merit the term "intelligent" behavior rather than "merely instinctive"; yet the necessity of recognizing that behavior is intelligently modified, leaves us still dependent upon the instinctive organization for the primary determination of the aim of those efforts. This statement, I believe, is in accordance with the doctrines of the various dynamic psychologies. It will be noted that I do not speak here of "instinctive drives," for there are advantages in considering the "drive" in later paragraphs as a separately variable phenomenon, not so specifically differentiated in patterns as are the instincts, and therefore not properly to be bracketed indiscriminately with instinct.

The following tentative list of instinctive acts is given, not as final conclusions, but primarily to exemplify clearly the restricted concept of instinct as here defined:

#### TENTATIVE AND PARTIAL LIST OF HUMAN INSTINCTS.

##### A. Fairly specific patterns:

1. To breathe.
2. To swallow.

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\* Morgan, C. Lloyd: *Habit and Instinct*, Edward Arnold, London and N. Y., 1896.

Instinctive Behaviour and Enjoyment, *British Jour. Psychology*, 12: 1-30 (1921).

† Claparède, Ed.: *The Wittenberg Symposium*, pp. 124-139, Clark Univ. Press, 1928.

‡ Shand, A. F.: *Mind*, N. S. 5: 203-226 (1896); 16: 477-505 (1907).



3. To suck the breast.
  4. To eat food.
  5. To vomit or reject bad food.
  6. To stand up and walk.
  7. To perform coitus.
  8. To strike an opponent.
  9. To cry for help.
  10. To follow a leader.
  11. To cling to a protector.
  12. To pull away from restraint.
  13. To run away from danger.
  14. To hide.
  15. To sleep.
  16. To display oneself.
- B. Instinctive vestiges, less sharply specified:
17. To search (to look for food, to doubt, to test, to experiment, to tease, etc.).
  18. To assemble (to collect food, to build a house, to accumulate money, etc.).
  19. To protect (to guard food and fortune, to care for wife and child, to suckle baby, etc.).

On account of the present state of uncertainty regarding the characteristics and limitations of man's innate endowment, it is somewhat too early to accept as final any list of instincts. In considering this difficulty, however, it may be borne in mind that the primary purpose of describing conduct as observed may be accomplished in terms of a tentative list of action patterns, whose ultimate status as instinctive or acquired may be held open for subsequent revision.

It will appear to some and, perhaps, particularly to medical psychologists, that instincts as here defined and illustrated sound much like reflexes. I do not attempt a rigid distinction. I have considered it wise, however, to discriminate between them in a general way, not merely on the basis of complexity, but more definitely on the basis of integration, for instincts are whole-reactions, reflexes are fragmentary. The typical reflex is readily describable as a response to a stimulus, with only minor reference to the general physiological state, but in instinctive acts it appears rather as if the internal condition were the truly effective cause and the objective stimulus merely an appropriate circumstance.

### III. THE "DRIVING" FUNCTION OF EMOTION: IMPULSION AND ITS RECIPROCAL RELATION TO INSTINCTS AND INTELLIGENCE.

The bare proposition in the preceding section that human behavior is instinctively determined in the direction of its efforts, but intelligently modifiable in its manner, leaves untouched the further questions as to why one should strive in any direction at all, or what leads one to utilize his intellectual capacities. Without attempting any profoundly philosophical answers to these questions, I have been trying to apply as far as possible the notion that emotion is the biological device which serves both these functions.

The human infant is notoriously deficient in instinctive action patterns, and human instincts, whether congenital or of later maturity, are very susceptible to rational suppression or postponement. Yet man has still the same essential biological needs as the other animals. It does not make food-hunger or sex-hunger any the less real because "intelligence" in its broadest sense must largely modify instinctive action patterns in determining the means to their satisfaction. Indeed, it seems altogether probable that the intelligent creature, subject to distractions unknown to the more strictly instinctive, requires to be actuated by more intense and insistent impulses. The impulsive or appetitive component of behavior has not, therefore, in man, "atrophied" with the subjugation of the more nearly automatic action patterns, but instead has, perhaps, even "hypertrophied." We need, therefore, for our discussions and attempts at description, some special term indicative of this "impulse" component. The word emotion, from its etymology and common meaning, should express this concept admirably, but there are now so many and such varied definitions of emotion that the use of this word may lead more to confusion than to clarity. It seems to me profitable to employ instead the term *impulsion*.

By *impulsion* I mean to indicate primarily the psychological experience, vague but intense, of an unpleasant physiological state, the signal of a biological need. The distinction between *impulsion* and *instinct* may be further emphasized by the statement that I suppose *impulsion* as a psychological experience to be rudimentary in those animals whose neural structures, as shown in behavior patterns, provide almost automatic locomotor adjustment to the objects appropriate to the satisfaction of their biological needs, that is to

say, in animals richly endowed with instincts; whereas I suppose that impulsion, as a psychological experience, is most highly developed in man, where the suppression or extreme subordination of instinctive action patterns, necessitates a more insistent signal of distress.\*

To avoid misunderstanding, it should be said here that the relief of impulsion by appropriate and successful behavior is a pleasant experience. With repeated experiences there develops also a pleasing anticipation of success. But the primary impulsion, that which is a general trait in experiences recognized as definitely emotional, tends to disturb, confuse and disorient a person—to shake him out of inadequate or unsuccessful attitudes. It may sound novel to emphasize the connection of an emotional experience with the unsuccessful attitude which it disrupts, but whatever novelty there may be in this viewpoint is only academic novelty.† In the practical everyday knowledge of life, emotional phenomena are regularly taken as indications of unpreparedness. In clinical practice it is a possible and valuable artifice of psychotherapy to plan deliberately for situations in which a too complacent patient may have revealed to him, through an emotional experience, the inadequacy of his attitudes.

#### IV. INTELLIGENCE, MEANING AND ATTITUDE.

I use the word intelligence throughout this discussion to indicate the capacity for modifying behavior. Where reference is made to the intelligent control or inhibition of instincts, it is not implied that

\*In its neural relationship, one may assume for impulsion a center of consciousness in the "essential organ" of the optic thalamus (its median nucleus as indicated by the studies of Head and Holmes). This nucleus is the chief central station for that diffusely distributed neural system for internal control, to whose more peripheral parts have been given the names autonomic and sympathetic. This central nucleus is also intimately connected with the primitive chemical senses of smell and taste. It is perhaps directly sensitive to such chemical influences as the hydrogen-ion, as are the other centers of its system; *e. g.*, the vasomotor center and the epinephrine-discharge center.

†Those who define emotion as the affective accompaniment of an instinct are of course logically constrained to deny Shand's distinction, which I try to follow here and which assigns to emotion, as a psychological experience, something more than mere epiphenomenal significance.

in intelligence there lies any new and separate source of motives, distinct from instinct and emotion, but merely that an organism, after experiences of an instinctive effort, possesses the capacity to recognize the meaning or aim of later like experiences and to modify its efforts in a manner recognizably favorable to that aim. Functionally, intelligence is manifested in two distinguishable fields: in the differential "analysis" of experience so assiduously studied by Pavlov, whose dogs indicate the meanings which have become associated in certain events, by stereotyped behavior patterns; and in the neuromotor capacity for increasing efficiency through novel combinations or modifications of action patterns. In this sense, the acquisition of a conditioned reflex or a new habit is an intellectual performance, even if it is "unconscious."

Intelligence is not, I presume, spontaneously active, but requires some degree of emotional stirring. In a preceding section, much importance was attached to the state designated impulsion, as the biological device for stirring up activity, ordinarily supplemented in actual experience by some instinctive pattern which orients that activity. If the particular instinct then activated fails to supply the need from which the impulsion arose, or if the instinct which might supply the need is blocked either by objective obstacles or by the inhibitory action of some contrary instinct, the impulsion experience persists, and by its persistence calls for the exercise of intelligence. It is the hungry dog which learns conditioned salivary reflexes; it is the dissatisfied man who is concerned about metaphysical theories.

As a corrective to the epistemological preoccupations in the light of which the nineteenth century formulated its study of mental life, it is significant to note that the word "mental" is related in root, and hence in its primitive sense, with the words "means" and "meaning." In man's conscious life, there is but little direct biological value in prolonged reflection upon emotional stirrings and instinctive aims; the reflective consciousness is most usefully applied to a consideration of means, instruments and tools subservient to instinctive aims. The reification of instrumentalities as "objects" and their mental organization in categories such as space and time, may be considered as useful intellectual abstractions from the experience of events. Language provides a symbolization for these abstractions and, hence, embodies a communicable knowledge. The agreement or disagreement of experiential report which language

makes possible constitutes the commonly accepted, practical test of knowledge. But knowledge in itself, or the language in which it is formulated, or the intelligence which formulates it, are of instrumental, rather than final significance. They represent means—the ends are more immediately given in life itself. The actuality of experience is primary, the reality of objects secondary.

These rather philosophical reflections are expressed here, where they might seem otherwise out of place, because of my beliefs that any adequate description of psychotic behavior requires some definite attempt to discover and record the individual and personal *meaning* of that behavior, and that the observer requires for that task some clearly formulated conceptions of reality and meaning in his own mind.

The very intelligence which usefully modifies and sometimes harmfully distorts the instinctive activities of a particular person, considerably obscures for the observer the meaning of the observed activities. Unmodified instinctive acts have fairly obvious meaning, but there are grave dangers of a false simplicity in theoretical instinctual formulations of complex adult behavior. The day is far distant, if ever attainable, when one may hope to observe, describe and precisely identify the well-nigh infinite varieties of postures, gestures, words, intonations, "physiological" changes, etc., in which the various components of meaning make themselves manifest. Meanwhile, it seems preferable, for the purposes of descriptive study, to summarize our observations and inferences in rather crude statements regarding "attitudes." This patient, for example, one may say exhibits in certain events a frankly erotic attitude, in other situations an attitude of clinging to one for protection, or perhaps at times, a withdrawal attitude; another patient fluctuates between fearful and belligerent attitudes. One does not mean by the latter expression merely a pugilistic posture, but rather that the person so characterized behaves, in a variety of events, as if those events had for him a fighting meaning, so far as observers and interviewers can judge the significance of his conduct and remarks.

For this purpose, I define an attitude as an instinctive action pattern, either in its innate form or modified as a habit, which, being activated, determines the meaning of an event, but which may or may not be inhibited from full expression.

## V. CONCERNING SPECIFIC EMOTIONS AND PLEASURE.

Of the instincts which serve to orient impulsion, few, if any, are as fundamental and prepotent as the instinct to breathe. This instinct is not specifically directed toward any definitely perceived object. It is therefore not readily apprehended as an instinct under the object-response formula. Nevertheless, it seems to me proper to call it an instinct, for breathing surely fills the requirements of our definition—a series of motions, recognizable as a behavior pattern, which is common at least within a species and is biologically useful but intuitively performed under the appropriate combination of external circumstances and internal, physiological state. Breathing may be called the most fundamental human instinct. Furthermore, since discharge of carbon dioxide and intake of oxygen are the most immediate needs of all men, so one in the impulsion experience tends commonly toward respiratory activity. It is not by accident that the words anxiety, anguish, angina, and anger have a common root with *angere*, the Latin verb to choke or strangle. With this connotation, anxiety or angina may be taken as the most primitively oriented impulsion experience. The inhibitory trend of the anxious reaction has also a primitive biological utility, even in its limited respiratory significance, since inhibition tends to minimize the increase in gas exchange by checking large increases in energy metabolism.

The activity aroused by impulsion is not, however, as a rule *restricted* to the respiratory pattern unless respiratory activity does in fact satisfy the immediate need and bring relief from impulsion. More commonly other instinctive action patterns also come into play, sometimes under quick intellectual guidance which is called insight, at other times in a trial and error fashion. It is through this orientation by action patterns that impulsion finds direction and specific quality and appears retrospectively as a specific emotion.

What various psychologists have described as the particular emotions, such as fear, and anger, are here considered as being in the beginning very much alike. The particular differences depend upon the mode of emergence from the impulsion, that is to say, upon the orientation by instinctive action patterns. Primitive impulsion experiences, thus qualified as particular emotions by particular instincts, are also through education modified by associated meanings



and by the anticipation of success or failure. Thus a catalogue of particular emotions is capable of almost infinite expansion, being limited chiefly by the imaginative insight and the literary capacity of the cataloguer. In so far, however, as all emotional crises are impulsion experiences, they are *functionally* alike, in that they stir to action, tending to disrupt the preceding attitude and prepare for a re-orientation.

From the point of view here presented pleasantness and unpleasantness do not appear as equally fundamental features of the affective life. It seems to me wiser to suppose, as this hypothesis implies, that the unpleasantness, the signal of distress, is primary, and that pleasantness is a secondary affair, dependent upon the relief of impulsion by appropriate and successful behavior. Thus the full belly appeases hunger, the moistened throat relieves thirst, free and vigorous breathing expels carbonic acid and provides oxygen, the vanquished enemy no longer menaces, etc.

If one seeks through this formulation to give an account of the pleasant glow which characterizes almost any unhampered activity, even in the absence of pressing needs, one may suppose that such playful enjoyment of instinctive activity is referable to a conditioning by previous experiences in which a biological value was more directly manifest.

#### VI. MOODS.

Although it has been emphasized above that the impulsion experience is vague and requires orientation by some motor action pattern, it must also be recognized that there are conditions of emotional sensitivity, popularly called moods, which definitely favor some types of action rather than others. One recognizes without special definition at least three moods: (1) an eager mood, which favors the easy activation of numerous instincts and is associated with thoughts of success, sometimes apparently as cause and sometimes as effect; (2) a dejected mood, which tends to a general inhibition of activity and is associated with thoughts of failure; and (3) an anxious mood, which favors the activation of some instincts such as to run away from danger, to strike an opponent, to cling to a protector, to cry for help, but which also tends markedly to check all activities, even of these favored instincts. There is also (4) a mood of contentment, which coincides typically with a full belly

and which favors the instinct to sleep. Moods often appear, as in this instance, to depend upon physiological states, but they also appear at other times to be under imaginative control. Sometimes it is convenient to specify a mood merely by some particular instinct which it favors, as a mood for crying, a mood for eating, a mood for fighting, etc.

It is possible that the four moods—*anxious*, *dejected*, *eager* and *contented*—represent merely the general orienting tendencies of those instincts which concern the fundamental metabolic needs. The connection of anxiety with breathing has been indicated already. It has a strong impulsion component. Dejection is perhaps associated with disgust and the rejection of bad food, and hence with bad fortune in general. The eager and contented moods are primarily oriented toward good food—one in prospect, the other in fulfillment. The last is in itself devoid of impulsion. The eager mood may appear superficially like a strong impulsion experience, but this is to be doubted. Rather is it to be considered as a comparative freedom from inhibitory trends, so that the carrying out of instinctively directed activities, or the transition from one activity to another, is easy and unobstructed, requiring comparatively little impulsion.

#### VII. CULTURAL TRANSFORMATIONS OF INNATE ENDOWMENT; HABIT AND SENTIMENT.

In the actual work of clinical description and interpretation, and in efforts at re-education, the schematic simplicity of the preceding discussion requires, of course, a considerable expansion and supplementation. The innate endowment of man is inadequate for the conduct of civilized life; and any terminology devised for the description of his innate functions is likewise, and for the same reason, inadequate for the description of the civilized man's conduct. Liberal as one may wish to be in making allowance for the post-natal growth and maturation of instincts, some additional concepts are required even for the simple observational description of behavior. In striving for as great a simplicity as possible in this approach, one is greatly aided by the concept of habit-formation, particularly as this concept has been illuminated by the experimental work of Pavlov's school and the American behaviorists. One may postulate, tentatively, that what is called the acquisition of habits

represents, *in its individual meaning*, the modification of instincts. Habits are here considered as internal tools, as it were, fabricated in the learning process from the raw materials of intuitive action patterns. This, I presume, is the principal biological significance of the extreme plasticity of human behavior: that it makes possible through a long period of immaturity a development of habit under the cultural influences of the home, the church, the school, the playground, and other social agencies. Thus the scanty instinctive endowment of infancy leaves room for the development of the large human capacity for modification of behavior, and makes possible an ultimate biological superiority.

Now habits, even at the level of mere motor reactions, have a strongly marked and widely recognized moderating influence on the emotional life. Just as we may assume that the loss or suppression of instincts in the biological evolution of the human animal has demanded the greater development of the psychological function here called impulsion, so it appears to me also, that in the reverse way the acquisition of habits, through cultural transmission during the individual's development, lessens this demand and thereby may make possible, for the cultured man, a more temperate emotional life. It might be argued on theoretical grounds that the mere increase in number and variety of motor habits should suffice to accomplish fully this moderation.

There is, however, another order of cultural devices, distinguishable from the habits—at least from the mere motor habits—which not only moderates but above all serves toward the integration of the emotional life. I refer here to what Shand has called the sentiments, which I take to be very nearly what Ribot called *les passions* and which, if I understand them, are implied in the Freudians' discussions of sublimation, idealization, the ego and especially the super-ego.

Shand's doctrine of sentiments has been extensively developed, and schematized by McDougall. The latter writer assumes, however, a parallel relation between emotion and instinct. In differentiating instinct and impulsion in the preceding discussion I have sought to utilize Shand's conception, instead of McDougall's. Shand states: \* [Instinct and emotion] "are often confused be-

\* Shand, A. F.: The article Character, in *Encyclopædia Britannica*, 13th Ed., London and N. Y., 1926.

cause so often combined together. An instinct advancing to its end unchecked does not need to arouse emotion. In itself it is unlike emotion; it is most like habit. Both instinct and habit are orderly and stable, showing so little variability in action that we forecast the course of it. . . . The value of emotion lies in these two points of difference from instinct: (1) The force which it brings to deal with a given situation, and (2) its potentially more complex and adaptable system. It is indispensable to the sentiments."

I do not myself propose here to schematize in general theoretical terms the structure of specific sentiments. They are not easily schematized without detailed reference to personal and individual experience. Yet there are recognizable systems and similarities: The confirmed loves and hates, loyalties and obsessions, anxieties and phobias, the regular job and the hobby, patriotism and fetishism, and the chivalric and religious dramatizations of life. One may remark, also, a grotesquely exaggerated sentiment of independence frequently characteristic of schizophrenic patients, and a rather fanatical sentiment of conscientiousness exhibited in the life histories of persons subject to the manic-depressive psychosis.

It is the sentiments which give consistency to character; yet the superficial inconsistencies in conduct often provide valuable clues to the more fundamental sentiments.

Functionally considered, the sentiments are cultural devices for the psychological management of strivings. They serve the same function which, in the preceding pages, has been assigned, on its most primitive level, to the psychological experience called impulsion—that is, the sentiments serve in the shifting of attitude; but they lead, rather than drive. Ideally, they lead one from conflict, confusion or temptation into some fairly well integrated attitude, established by previous personal experience and training.

#### VIII. GENERAL DISCUSSION.

A few implications of the foregoing formulations and definitions may be made explicit here as indicating the points of divergence from, and agreement with, current systems of psychology. Instincts are considered as action patterns, oriented to fill biological needs; the most fundamental determinants of directed conduct, but not "sources of energy." These action patterns are not assumed to

be completely stereotyped or immutable, but their modification is attributed to intelligence rather than to some power latent within the instinctive disposition itself. Emotion is here conceived not as a psychic parallel or epiphenomenon of instinct, but as complementary or reciprocal thereto. Real biological significance is here attributed to the impulsion experience as the basis of emotion, the interrupter of inadequate attitudes.

Finally, the provisional nature of these concepts should be emphasized. When it is said that impulsion arouses to action, instinct orients activity towards objects and intelligence modifies and integrates activity, it is not to be understood in any metaphysical sense, that impulsion, instinct and intelligence are distinct and separable entities, acting upon each other or upon the organism. They are merely concepts, abstracted from the real unity of experience for convenience of thought and discussion. These concepts represent a tentative concession, as it were, to the objectifying tendency of the mind, which is prerequisite to logical thought and verifiable inference.

It is to be hoped that by working in this direction we may facilitate observational report upon, and verification of, psychological principles intuitively guessed, or otherwise suggested, and at the same time provide more significant correlations than heretofore for the more strictly scientific laboratory studies.

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## THE CHILDREN'S INSTITUTE OF THE ALLENTOWN STATE HOSPITAL.\*

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The need of a children's institute in a state hospital can best be emphasized by the fact that since June 1, 1924, 266 first admission children, 171 boys and 95 girls, under 16 years of age were admitted to the Allentown State Hospital Mental Health Institute for Children.

There were in the hospital May 1, 1931, 79 children, 48 boys and 31 girls, under 16 years of age. Twenty-one of this number, 12 boys and 9 girls, are cases of post-encephalitis.

The largest number of this group admitted since 1924 was within the hospital years ended May 31, 1930, and May 1, 1931, when there were admitted 50 first admission children, 35 boys and 15 girls, in the former period and 54 children, 35 boys and 19 girls, in the latter. This shows an increase of 7 over the previous hospital year and 4 the present year up to May 1, 1931. This number for each year would have been larger had it been possible to grant all applications. Of the total 104 admissions within the two-year period, 60 were upon Juvenile Court order for observation, diagnosis and treatment.

An interesting factor in our admissions is that of diagnosis. Of the 104 admissions, 62 or 59.6 per cent were entered on our records "without psychosis"; of these, 34 were cases of mental deficiency, 6 of which were borderline cases; 12 environmental problem cases; 8 psychopathic personality; 1 schizoid personality; 1 delinquency; 4 epilepsy; 2 no designation. Thirty-three were placed on our records as with psychosis; 13 of these were diagnosed post-encephalitis, all of whom manifested conduct disorders; 4 were cases of epilepsy; 2 juvenile general paresis; 6 dementia præcox, catatonic type; 2 hebephrenic type; 3 mental deficiency; 2 manic-depressive, manic type; 1 chorea; and 9 were recorded undiagnosed.

\* Read at the eighty-seventh annual meeting of The American Psychiatric Association, Toronto, Canada, June 1-5, 1931.

The children recorded as without psychosis, the medical staff, after a period of study, agreed could not be placed in any of the diagnostic groups in the regular list of psychoses.

It may be of interest that as a predisposing factor, heredity was reported in 34 cases. There were 14 boys and 15 girls who previous to admission manifested sex offenses, 15 were reported as incorrigible, 5 given to larceny and 17 delinquencies. On this date, May 1, 1931, our records show 24 on furlough under social service supervision, 21 boys and 3 girls; 13 were returned to the public schools; 4, 2 boys and 2 girls, leave the hospital in the morning to attend junior high school and return to the institution in the evening.

The work of the Institute for Children has increased very materially and, as already implied, there is a constant demand made upon us for the admission of children under 16 years of age, through Juvenile Courts, Public Health Nursing Agencies, Welfare and Social Service Organizations as well as by parents and guardians from every part of Pennsylvania. Juvenile Courts commit children for observation, diagnosis and treatment in accordance with provisions of the Mental Health Act.

A new building designed for this purpose and forming a part of our psychiatric institute grouping was opened on January 1, 1930. Previous to that date, children committed to the hospital were placed in wards with adult patients. This in many respects was unfortunate. For the most part the adult patients took a somewhat parental interest in the children. We had practically no trouble due to petting or spoiling, although we did find that the children became a source of irritation to the adults because of their uncontrolled behavior.

This building consists of two stories and a semi-basement with accommodations for 60 children and was planned not alone for sanitation, ventilation, light and other health features as well as fire protection, but also with the idea of assuring the greatest administrative efficiency in the care and treatment of children under 16 years of age as patients, their protection under all circumstances, the reception of visitors and ease in handling the many problems of care and treatment confronting the attending physicians, nurses, attendants, school teachers and musical and physical instructors.

The building is of brick construction and as nearly fireproof as it is possible to make it. The first two floors are almost exact

duplicates; the upper is occupied by the boys and the lower by girls. It contains reception rooms and physician's offices on each floor. An examination and treatment room, which adjoins each physician's office, is furnished with all necessary equipment for examination as well as for routine and emergency treatment. The reception room for visitors adjoins the physician's office. This arrangement assures efficiency in the handling of visitors and patients.

Each floor has a modern schoolroom equipped with 25 Universal desks. These are movable, and the seats and desks can be adjusted to the size of the child. Adjoining the school is a room devoted to musical instruction. Music receives special attention and daily classes are a part of the regular school program. Each floor has one single observation room; one 8-bed dormitory and four 4-bed dormitories; along the full length of the south side of the building is a combination 7-bed open-air sleeping and recreation porch separated by cubicle partition. There are two day-rooms attractively furnished where the children can be grouped for reading, the playing of quiet games or to listen to radio programs. The sleeping dormitories and day-rooms provide 50 square feet of floor space per patient. Concealed lights in the walls give necessary illumination at night. A nurse's office is centrally located and is so arranged that a view can be had of the sleeping dormitory and day-rooms.

The special treatment facilities consist of a heliotherapy room for each floor with vita-glass windows and equipped with ultra-violet and diathermy apparatus. Two continuous flowing neutral bath treatment tubs, Leonard-Rooke thermostatic controlled, and special shower division for bathing purposes are provided. The first floor differs from the second in having a complete hydrotherapy unit controlled by a Baruch table. It also contains a shampoo table with equipment.

In the semi-basement, which has full length windows, there are two well equipped occupational therapy rooms and a full size gymnasium completely equipped, surrounded on three sides by a balcony and passageway. The basement also contains patients' dining rooms with the required serving and dishwashing rooms. The color scheme predominating throughout is silver-gray and green.

To the rear of the building is a wide area for playground purposes. Suitable apparatus is provided for such activities including volley-ball, basket ball, baseball, and other recreational features. A regular schedule of play organized under the direction of a trained physical director is carried out.

In the development of the children's department, we have not confined ourselves to the obvious abnormalities which can be diagnosed, but give attention to any conduct disorder or problem of adjustment. The symptoms vary considerably. Many cases, as already stated, do not fit into any classification. Therefore, there is no stereotyped solution for any number of cases; each child requires careful social service investigation to discover the causal factors among which may be environment, poor intellectual equipment, physical ill health, emotional abnormalities and various other factors. As psychiatrists, we do not view all reactions that depart from certain well established and arbitrarily fixed standards, as pathological.

A mental hospital, in addition to child guidance and psychiatric clinics, through its psychiatrists, psychologists, nurses and social workers with psychiatric and psychological background, is to our minds the one place that can properly observe, study, diagnose, treat and make recommendations to the courts and various agencies. By so doing, we hope that a good number of our juvenile patients will become respectable, self-supporting and law-abiding citizens. Our problem is not only to make a proper adjustment in the child, but also to promote that of the home and parents through our social service department. In the study of the juvenile cases, we are not primarily looking for frank mental disease. We think of certain mental habits which should be acquired; the bringing out of certain traits of character and the development of self-restraint, stability, mental poise and particular interests. Emphasizing the necessity of good habits is an important part in the child's treatment, in addition to looking after the physical disorders found in the examination upon admission, combined with laboratory findings. These cases involve personality studies, requiring examinations and investigations of a highly intensive and specialized type.

Full reports of the family and personal histories, mental, neurological and physical examinations and social service investigations

combined with a survey statement of the case with recommendations, are transmitted to the court within specified or varying periods of time as the court may direct or, if there is no specified time, as our judgment may dictate.

The social service department is an important organization in the making of a thorough investigation directly following the admission of the patient; this is especially important in cases committed by the Juvenile Courts. This requires a large number of interviews for anamnestic data. Some of the Juvenile Court cases and problem children have been improved under hospital treatment and guidance, to such an extent that they have been returned to civil life and have made a good adjustment under the supervision of the social service department. The difficulties which arise in their adjustment are numerous and require the greatest tact and patience. The family background and, above all, environment in a large percentage of cases is unfavorable. The re-education of the relatives and friends during the time the patient is in the hospital, is important; this requires the arousing of interest in the parents and careful adjustment. The working out of a definite plan for the future suitable to his condition, made before he is released on furlough, not only helps the patient to make a better and more permanent adjustment, but also helps the after-furlough supervision. For some of the children, it is necessary to find new homes, due to undesirable home conditions, parental and otherwise, as well as general unfavorable environmental factors.

From the first we recognized that each child must be studied and treated as an individual, as has always been our practice with adult patients and not upon the herd or group basis. It is necessary to plan the day with normal activities. When these children were first sent to us, beginning more particularly in January, 1924, we relied upon the occupational therapy department, combined with physical education, music and allied activities. We realized, however, that this program was not entirely satisfactory. The children's schooling was at a standstill, and it seemed as if education should be possible. The school development dates from October, 1925, first, as an experimental school, having for its purpose the application of educational methods as mental treatment under the direction of one of the women physicians. Since September, 1926, the school has functioned systematically, at first in charge of one

experienced school teacher. A second teacher was added in September, 1929, and we should now have a third if conditions permitted.

Under the guidance of the occupational therapy director, the school work is coordinated with that of the occupational therapy department, music and dramatics and physical education. Folk dances, æsthetic and rhythmic movements, drills, marches and games are stressed rather than calisthenics except for corrective gymnastics. A thorough study is made of each child upon entering the school and every effort is put forth to correct, when present, mental retardation. Such children are given elementary work until they have confidence in themselves. The children attend academic school only half days either forenoon or afternoon, depending upon the schedule. The other half is devoted to other activities which have been mentioned. During school hours straight academic subjects are taught. In this way the children are advanced to an even grade and prepared to enter a definite grade with minimum loss of time when returned home and again placed in the public school. We feel that progress has been made; there has been a decided improvement in the conduct, orderliness and habits of the majority of the children. The final examinations in all the grades in June, 1930, were the same as those given in the Allentown public schools. The passing marks in many instances were creditable. The three highest averages in a group of 15 girls were  $94\frac{1}{2}$ ,  $91\frac{3}{4}$  and  $90\frac{5}{8}$ . Only two failed. On account of the wide range of chronological ages within the two-year period, namely 4 years to 15 years with mental ages as low as 3 years 10 months (lowest intelligence quotient 47, highest 126), individual instruction has been the best method of teaching this particular group of problem children. With these different types there must be changes in the daily activities to suit their moods so as to hold their interest and attention. Punishment, for the most part, does more harm than good; kindness and understanding, balanced with kindly discipline and orderliness, are the methods of choice. As one of the school teachers expresses it:

The improvement which will be of most value to the child itself and to those who come in contact with the child is not the mere facts which the pupil gets from the text-books, but the great change in his attitude, effort and behavior. . . . At the beginning of the school year, September, 1929,



it was almost impossible to get a pupil to learn willingly. The general attitude was one of defiance. Gradually the attitude and behavior changed so that the children developed a keen interest in all their work.

Another of the teachers who instructs the older boys made the following statement:

There is one thing that the entire group has learned that pleased the teacher very much and that is to carry on a conversation, have arguments and exchange opinions in class about schoolwork without hearing "Aw, shut up!" and much worse, as was the case at the beginning of the term. In fact, we have been able to conduct school just like any other school.

Some of the cases of post-encephalitis are real behavior problems. Before admission to the hospital, they were unable to get along socially at home or in school, given to running away, stealing, telling untruths, scratching, kicking and biting. They have repeated impulsive outbursts and are disobedient. As a group, they are mentally bright and eager to learn. On the whole they have a pleasing personality. They are our most difficult problems in the school.

The next most difficult are those of psychopathic personality. The following statements taken from the case history of a boy aged 14 years, admitted to the Institute December 29, 1930, upon Juvenile Court order from a Reformatory school, are quite characteristic of such cases:

Personality history shows he is a bright, alert boy who scarcely ever relaxes, has an intelligence quotient of 104, is a coward. Prior to his admission he was inclined to hurt other children; could never play with them on account of his domineering way; is untruthful, deliberately lies and thinks he can create a sensation; is willful, stubborn and possesses a strong temper; in another mood, he is very affectionate, lovable and quick to respond to requests. He has stolen money to make other boys believe he had more money than they and to make them jealous. He destroyed property and was very disobedient in school; played truant and ran away from home. He was punished with the rattan, whipped with a stick and strap.

The children also have time for play, with out-of-door playground recreation and work in the garden during the spring, summer and fall months. Some of the things we try to cultivate in the children are correct attitude towards those in charge, good manners, neatness and tidiness about their personal appearance and habits, self-control, courage, self-sacrifice, loyalty, honesty, unselfishness, fair play, as well as charitableness and kindness toward fellow patients.

Teaching children how to usefully apply their hands is a very important part of their education and training. In the boys' classes are taught all sorts of craftwork, such as woodwork, reed and raffia basketry, painting, weaving, hooking, tapestry, Persian and cord knotting, etc. In the girls' classes, all sorts of needlework including dressmaking and teaching the use of the sewing machine are encouraged. Craftwork including basketry weaving, making stuffed toys, hooking and Persian knotting is also done. All occupational therapy has only one aim,—the welfare of the patient. The significance of occupational therapy work must not be thought of in terms of muscular activity but rather in what takes place in the mind of the patient. That depends to a great extent upon what goes on in the mind of the physicians, nurses and occupational therapists and upon the influence they are able to exert. We cannot cure mental disease by any particular treatment as such, but we can modify some of the symptoms. We assist the patients by everything we do for them, thus aiding them to adapt themselves in a more normal way to their environment. When a person works or is occupied in some way he is less likely to get into mischief. The same energy which creates the mischief can be usefully employed.

The music and dramatic activities are beneficial for these children. They are being taught to appreciate some of the fine things in life and it is gratifying to see their interest grow. A rhythmic band was organized in January, 1930, in the primary department. This band at first played by rote; now they play from a picture score, which demands absolute concentration. The children have developed an excellent sense of rhythm from the band work and thoroughly enjoy it. Within the school year beginning with September, 1929, the girls' chorus in the sight reading class learned to read one part or unison music quickly and intelligently. In January 1930 they were reading two-part music with some difficulty. At the close of the school year, June, 1930, they were able to read three-part music intelligently. The children had the pleasure of listening as a class to Dr. Walter Damrosch in his appreciation talks to the school children of this country. The majority listened intelligently and with keen enjoyment. Each program was discussed by the director of music in the regular appreciation class which averaged 45 in number. The work with small boys in physi-

cal education includes drills, facings, singing, games, relays and varied ball games. Circle games are quite successful with this group; order cannot be kept as well in relays. This group must be kept busy every minute of the hour. The group of older school boys responds readily to drills, marching, running, baseball, and all types of active games. The group of older school girls responds to all kinds of folk, rhythmic and æsthetic dancing. Interest is kept up by varying the program with exercises, wand drills and circle games.

The children are also taught to take part in household duties such as bed making, ward cleaning and dining room work.

The general health of the child on admission is invariably below par. Rest, food, fresh air, hydrotherapy in one form or other, especially the continuous flowing neutral bath, and physiotherapy, particularly ultra-violet rays and out-of-door exercise, play an important part in the treatment of these patients. Interest, enthusiasm and real pleasure in the work are, after all, the important factors in bringing results. Added to all this there must be patience and perseverance on the part of everyone. The more we do from a medical and nursing standpoint, including the various individual activities, the larger our results. As for those who have the active responsibility, whatever their position, their own personality and interest in this work, spell success or failure.

The boys and girls who have been sent to us for observation, diagnosis and treatment are, for the most part, happy in their new surroundings and many of them have made a good adjustment; whereas formerly, either in their homes or in the public schools, they have been great problems for their parents or teachers or both. Those who have come from foster homes, where they have not been properly understood, also make a good adjustment.

In our experience with mental problems we become more and more impressed with the importance of the care of children who manifest conduct disorders of various kinds, such as truancy, stealing, sex offenses and various emotional upsets, especially temper tantrums, which for the most part are emotional habits.

It is our opinion that if anything is to be accomplished from a mental hygiene standpoint in reducing delinquency and lessening the need of institutionalizing young people either in school reformatories, penal institutions or mental hospitals, it must be in the early

recognition of these juvenile offenders and problem children and the making of proper home and environmental adjustments. Naturally, a hospital cannot care for and treat children without having problems and considerable trouble. Unless we are willing to strive toward an ideal and work out the problems as they arise, we render no better service than the community or the state at large, the various social agencies, the courts, or even the medical profession in general. It is a matter of experience, correct interpretation and education. Therefore, there is definite need for proper provision for the care and treatment of children under 16 years of age in hospitals for mental diseases.

We are convinced that the secret of some of our success lies in the fact that we endeavor to keep the child's mind occupied by systematically planning each day with normal activities. We are also satisfied that the realization of one of our ideals, namely, the segregation of our children in a specially designed building with proper equipment, has been an important factor in our success.

#### DISCUSSION.

DR. FREDERICK H. ALLEN.—There is one point in Dr. Klopp's very interesting paper that I should like to comment on. There is a very real place for the type of children's institute that he has developed in Allentown. Its success, however, is going to be dependent upon two things, both of which Dr. Klopp is as fully aware of as I am. I merely mention them to give emphasis to valuable points brought out in his paper. In the first place, the success of this type of institute will depend largely upon the way in which intake can be limited. Unless one can do this, these institutes are apt to become the dumping ground for all kinds of problems that do not belong in mental hospitals, and particularly do not belong in this kind of institute. As these institutes develop, and I should like to see them develop in at least one state hospital in each state, there should be a definite intake policy established and cases carefully surveyed before they are accepted, to determine whether or not they belong in this type of institute. In the second place, these institutes will have an opportunity for careful investigation work on emotional problems presented by these children whose behavior is such to require their removal from home and placement in a hospital. To carry this out these institutes will have to have a personnel that has the proper type of training.

DR. EARL D. BOND (Philadelphia).—I have only a few words to add to the discussion of the experiments of Dr. Klopp and of the Commonwealth of Pennsylvania in the new institute for children in connection with the Allentown State Hospital—a few words about the interrelation of the children and the staff.

The children, in the first place, have been taken out of the community where they are not understood, where they are knocked about and where they knock other people about, and placed in the care of a psychiatric staff which is thoroughly used to the bad behavior of adults, and so takes the behavior of these children as nothing to get excited about.

Then the staff, by arranging the schedules for the children, by looking after the children's school work, by looking after the occupational therapy and the music, by sending some of its patients out to the junior high school, gets in closer touch with a great many interests of the community that are not usually associated with the work of a state hospital.

Also by using nonstereotyped methods in dealing with the children, they get themselves ready to make more flexible their care of their adult patients.

The group at the Allentown State Hospital, which I have had a chance to see from its beginning, is not a very well selected one. The success of the experiments certainly will depend on how much Dr. Klopp is allowed to classify and reclassify the children whom he gets. But, incidentally, there is one way in which the staff benefits from this lack of selection. It is applying psychotherapeutic methods to this mixed group, and incidentally, as was mentioned this morning, it is finding favorable results from the application of psychotherapeutic methods to cases which seem malignant organic ones.

I certainly think that the states of Pennsylvania and New York, as represented by the Allentown and the King's Park Hospitals, have shown that every state and every province should have somewhere in its borders a cottage for children connected with one of its state hospitals.

DR. HENRY I. KLOPP (Allentown, Pa.).—I fully concur in the statements made by Dr. Allen and Dr. Bond, regarding the importance of the elimination of the feeble-minded and epileptic in the admission of patients to the Children's Institute. There is, however, a factor that no one can fully appreciate who is not in the position of a superintendent who receives communications from all parts of the State of Pennsylvania, making demands, appeals and pleadings for the admission of children to the institute for observation, diagnosis and treatment.

Many of these pleadings come from our mental clinics and social agencies. They want help. They are up against a stone wall. They do not know what disposition to make of these children. This is one phase, and it is an exceedingly trying situation to answer such appeals.

The next question is: What are you going to do with your juvenile courts? The judges today desire to be progressive, which is commendable. They also want assistance. They have come to the point where they no longer want merely to send a juvenile to a school reformatory. They recognize that by so doing, too large a percentage have become "repeaters" in the school. They keep going back into the community, into the courts and finally become recidivists.

One of the judges said to me, "Doctor, why is it when I send some of these cases to you, they don't come back? When I send them to certain institutions, they are returned to the court."

How then, are we to be of help to the courts? When the court orders a boy or girl to the hospital, what are we to do? I have been conscious of the facts pointed out, but it is an immense problem, and it is not lessening in any way, because institutions do not want to be bothered with these problem cases. If we could select, certainly we would be able to do better. What we endeavor to do is to eliminate all children who cannot be taught. If we are making no progress with them, we immediately eliminate them from the institute and place them among the adult prolonged service cases until we can bring about their admission to a school for the feeble-minded.



## AUDITORY HALLUCINATIONS IN "NON- PSYCHOTIC" CHILDREN.\*

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## INTRODUCTION.

During the past three years I have studied at the Psychiatric Department of the Community Health Center four children in whom I chanced to discover the existence of true auditory hallucinations. These four children form the basis of the present study.

At the outset it is granted that the assembling of a group of cases presenting a given symptom in common is a method that is deservedly losing its former popularity. Not many years ago it was customary to make studies of 50 cases of stealing, 100 cases of truancy, etc. To-day we are more apt to study a group of children who are overindulged, or who are rejected in favor of a more attractive sibling, etc. In other words, it is being more and more realized that two "only children" of adoring parents have a great deal in common, even though their external behavior differ diametrically; and, on the other hand, two children who steal may none the less have very little in common.

In spite of this modern shifting of emphasis, it is felt that the four very different children here presented are, taken as a group, very instructive, principally for two reasons: (1) It is most helpful in psychopathology to study phenomena at the earliest possible stage of their development, when their genesis and perhaps their "meaning" are closest to the eyes of the investigator. It is often said that the study of advanced abnormal states throws light on intermediate or "borderline" states. While this is true, the reverse also is true, and a proper understanding of infantile hallucinations should be helpful in clarifying the many puzzling problems connected with adult hallucinations. (2) The literature on infantile hallucinations is surprisingly meager. A great many articles have been written on the psychoses of childhood (for references see the articles of Rhein, Strecker, and Kasanin and Kaufman), and many of these articles contain case reports in which the occurrence of hallucinations is incidentally mentioned. However, the vast majority of these cases (excluding the transitory deliria following infectious disease in young children) concern children who develop at puberty acute psychoses of a manic-depressive or schizophrenic nature—in other words, cases approaching in complexity the similar cases occurring so much more frequently in later life. Furthermore, one looks in vain for cases

in which a systematic effort was made to describe in detail the hallucinatory episodes and the conditions under which they occurred.

Accordingly, as one reads the existing literature, one misses cases of "non-psychotic" children with hallucinatory episodes that are fully described and analyzed. The nearest approach to this objective is the paper of Sherman and Beverly, who made a study of 19 hallucinating children, in all of whom a diagnosis of schizophrenia had been made. Unfortunately the paper is brief and is concerned more with conclusions than with factual material.

The present paper aims to fill in some small measure the present gap in the literature. Four cases will be presented of "non-psychotic" children (all boys) with auditory hallucinations. By "non-psychotic" I mean that none of them has ever suffered from an acute psychotic episode in the ordinary sense of the term. In none of the cases has there been even a remote indication for placement in a mental hospital, although two of the boys show characteristics that may be regarded as symptoms of an early schizophrenic reaction.

In recognition of the need of painstakingly recording observable facts, the four boys were encouraged to recount every hallucinatory episode that they could recall, and their descriptions are here recorded with careful attention to detail and setting.

It is scarcely necessary to mention that in no case was the occurrence of hallucinations discovered through direct questioning. Asking a boy whether he hears voices would be an absurd procedure. In each case the hallucinations were accidentally discovered through some chance remark dropped by the patient, following which by discreet questioning the disclosure was followed up. The circumstances of the first disclosure are given in each case.

Only those cases were included in which there seemed good reason to believe that the child had had true hallucinatory experiences; in other words, in which the child had *actually perceived* (so far as we could tell) a stimulus known to be externally non-existent. Cases were rejected of children who playfully pretend to hear the voices of imaginary playmates. Similarly, cases of children who seek to avoid punishment for some escapade by saying "Something told me to do it" were rejected, since in these cases it seems justifiable to suspect that we are not dealing with hallucinations.

For the sake of uniformity and convenience, the data in each case will be presented under the following headings:

Name; date of birth; date referred to the Psychiatric Department of the Community Health Center.

*Family Situation.* The pertinent facts about the family "set-up."

*Physical Data.*

*Intellectual Data,* including school record and intelligence rating as determined with the aid of standardized tests.

*Personality Data,* limited for the sake of conciseness to the most significant facts.

*Hallucinations.* Each hallucinatory episode is numbered, so as to facilitate reference.

*Comment,* including interpretation of significant points.

As regards general intelligence rating, the children were rated according to the following classification: (1) superior competency; (2) normal or average competency (subdivided into high average, average and low average); (3) borderline competency; and (4) subnormal competency. This classification is roughly similar to that of Terman. The competency ratings were based on the intelligence quotient obtained by means of the Stanford revision of the Binet-Simon test as well as on the performance in other standardized tests.

#### PRESENTATION OF CASES.

*CASE I.—Summary.* Timid, immature boy. Low average intelligence. Rejected by comrades as "dumb-bell," "cuckoo." Compensatory fantasy. Markedly "absent-minded." Hatred of step-father. Evidence suggestive of coprophilous, homosexual and masochistic trends. Hallucinations began at or before 11 years of age.

Samuel A., born in February, 1918, was referred in January, 1928, by the Jewish Welfare Society.

*Family Situation.*—The father deserted in 1919, leaving the mother with a daughter, five years of age, and Samuel, who was then one year old. Shortly thereafter the father died. The mother went out to work, leaving her children in a day nursery. Being sickly, she found this régime difficult, and in 1920 she remarried, hoping to achieve greater economic security. The step-father, however, turned out to be a victim of cerebro-spinal syphilis, and failed completely as a provider. There was constant wrangling in the household. In 1923, the family required for the first time to seek charitable assistance and came under the care of the Jewish Welfare Society. At that time

the contact with the agency lasted about a year. The economic and emotional problems persisted and the family moved around frequently. Finally, in January, 1928, the mother died, after having been ill for sometime with carcinoma of the stomach. Thereafter the two children lived in private foster-homes, never together, and never seeing their step-father. In the case of Samuel, frequent change of placement occurred because most foster-mothers found him too difficult to keep.

*Physical Data.*—Nothing is known of the early developmental data, beyond the fact that at birth Samuel weighed nine pounds.

At his first physical examination, in 1923, Samuel was found to be undernourished, and suffering from chronic tonsillitis, cervical lymphadenitis, dental caries and pediculosis capitis. Following placement his physical condition improved markedly. At the same time he always impressed one as being rather frail. Despite a tonsillectomy and adenoidectomy in March, 1928, he continued to breathe through his mouth. An eye examination in June, 1928, revealed the existence of hyperopia, for which glasses were prescribed. The Wassermann reaction of the blood (January, 1928) was negative.

Samuel spoke with a pronounced lisp and also found "l" difficult; thus he said "wike" for "like."

*Intellectual Data.*—Owing to frequent change of residence, both before and after the death of his mother, Samuel changed schools often. In February, 1931, he was promoted to the low sixth grade.

The intelligence rating, as determined in January, 1928, was low average competency. The intelligence quotient was 86.

*Personality Data.*—Samuel's outstanding characteristic was his immaturity. Even a casual acquaintance with him was enough to convince one that he was childish for his years. Two incidents will serve as convenient illustrations. Early in 1929, Samuel was ordered by his teacher to repair to the hatroom, having violated some minor rule of school-room discipline. In the hatroom, as a protest against his punishment, he screamed, banged his head on the wall many times, and then lay down on the floor kicking. He was at that time 11 years old. On another occasion, in April, 1930, when Samuel came into my office for an interview, he immediately produced a package from which he extracted a toy, with which he proceeded to play. The toy consisted of a thin rod arising from a suitable base; there were many bright colored large wooden beads which one could string on the rod in any desired combination. By inserting two small "arms" and superimposing a wooden image of a clown's head, one would have a satisfactory representation of a gaily colored clown. One could then vary the order of the beads endlessly, each time securing a different effect. The toy is one that makes an appeal to children of five and six, but would be scorned by a boy of 12. Samuel, however, was so thrilled by this toy that he insisted on playing with it throughout the interview, and it was virtually impossible to talk to him about anything else. Significantly, at the end of the interview, after putting the pieces back into the box, the outside of which was decorated with illustrations of many bead-combinations (intended, no doubt, to serve as patterns to a

child playing with the toy), Samuel asked me whether I had a piece of paper with which to wrap it up. When asked why he wanted to do this, Samuel looked at it a moment and then said, "It looks like babyish."

Such immaturity unfitted Samuel to occupy a position of esteem in the eyes of his comrades, the more so since he was physically frail and not adept at self-defense. He was well aware of this, and in 1929, when describing the kind of foster-home in which he would like to live, he said he would prefer a home without other boys of his age-group. He had no objection to girls of any age or to boys much older or much younger than he. But boys of his age, he said, made fun of him; they mocked him and called him "dumb-bell." On a subsequent occasion his foster-mother stated other boys often termed him "cuckoo."

In a sense Samuel was an isolated youngster. He had no parents, and (what is no doubt more important) because of his immaturity and other qualities (described below) he was, as it were, spiritually isolated, particularly from boys of his own age. Furthermore, foster-mothers soon tired of him. For these reasons he impressed one as a lad who craved affection. For example, when walking with the social worker, he loved to put his arm around her and have her arm around him.

The painfulness of reality was compensated for with a great wealth of fantasy. Thus, in September, 1929, he related a fancy in which a fairy offers him everything his heart might desire. He wishes for millions of dollars, a beautiful home, etc. His mother then appears, in search of her lost son. Not recognizing him, she asks him if he knows Samuel A. With teasing intent, he replies, "No, I don't, but I'll look for him." He goes out, and returns some time later, telling his mother that he has not found Samuel. The mother wearily gets up to leave. He asks, "Where are you going?" She replies, "I am going away." He says, "No, you ain't," and then he kisses her. Outraged and still unaware of his identity, she slaps him in the face (in all probability a masochistic reaction on Samuel's part). With mock reproach in his voice, Samuel says, "That ain't right for you to hit me, Mother." Unbelieving, she replies, "I'm not your mother." Samuel then brings out an old copy-book and convinces her of his identity, after which she hugs and kisses him amid tears of joy.

Frequent fantasies occurred in which Samuel is the world's champion prize-fighter, "and everybody's scared of me." In October, 1929, he told me that he had a "sweetheart," named Dorothy. He related how one day, on the street, he saw this little girl (whom he did not then know) being bullied by a boy of his own size. Chivalrous Samuel threatened this boy with dire punishment if he did not leave immediately, whereupon the boy promptly took to his heels. Dorothy then expressed her gratitude and admiration for his courage, and they became "sweethearts." It was later virtually established that the existence of Dorothy and, of course, the story of their first meeting were fictitious.

Samuel had most unhappy recollections of his step-father. In his opinion, a blow inflicted by the step-father was the cause of his mother's cancer. As a result, Samuel had an elaborate fantasy in which he is a police captain, in



the district in which his step-father lives. Samuel "keeps his eye" on his step-father, and when the latter commits some indiscretion, Samuel has him arrested. The step-father is then subjected to a series of most ingenious tortures: for example, he is made to face a firing squad, who have been instructed to fire *near* him but not directly *at* him. The crestfallen man is eventually released, after which Samuel resigns from the police force, saying, "I only joined the force to get even with somebody."

So profuse was his fantasy that Samuel impressed everyone as preoccupied, forgetful, sometimes "in a daze." In addition there was a disinclination to meet certain demands of everyday life. Thus, one of his foster-mothers, in 1929, complained that he was too "lazy" after defecation to use paper, so much so that it was difficult to persuade the laundress to wash his clothes.

In addition to these relatively easily interpreted facts, there were a number of other observations whose significance is not quite so clear. In particular there was a great deal of skatological preoccupation. Thus, in September, 1929, the foster-mother reported that once when eating chocolate pudding, Samuel seized with his finger a piece of the pudding that was in his mouth and played with it absent-mindedly; suddenly he remarked to a little girl visitor, sitting next to him, that he was "doing number two." On another occasion the same foster-mother found him inserting his finger into the cloaca of a chicken. On March 20, 1928, reporting a dream in which his mother gave him an ice-cream soda (regression to the nursing stage?), he stated that "then I went to the bathroom for number two," after which he awoke.

In September, 1929, Samuel had a boil on the anterior surface of the thigh, an inch or two below the anterior superior spine. He consulted a surgeon, but refused to allow the boil to be incised, because, as he told me later, "I was afraid the knife might slip." As he said this, he made a gesture in the direction of his genitalia. This fear possibly represents a relic of an earlier castration fear. Possibly also it is connected with homosexual complexes. Thus in telling me of his fictitious sweetheart Dorothy, he mentioned that other boys, seeing him with Dorothy, sneeringly called him a "sissy," to which he replied that he preferred her company to theirs.

*Hallucinations.*—At an interview in September, 1929, Samuel spoke of his foster-mother's suburban house, mentioning the fact that she had a few peach and other trees. I said, "I'll bet you enjoyed the peaches this summer," whereupon he lowered his head in shame and replied, "I wasn't so good this summer." When asked how this happened, he said that he often finds it difficult to decide what to do: "My mind tells me to do different (opposite) things sometimes, and I don't know which to do." Asked to give further details, he said, "Sometimes I hear a voice on this side and it says, 'Don't do it,' and the other side says, 'Do it,' and I can't tell which is the right mind to obey." In describing this "voice," he explained that it is "not a real voice"; it is not even a "whisper." When asked whether it might be described as a "silent whisper," he replied yes. Since it was almost inaudible, I asked Samuel how he knew on which side it was perceived. He replied that when it occurred on the right side "my ear clings a little—like 'click'—so

I know it comes from that side." When the "whisper" was not accompanied by a "click," he assumed that it was on the left side.

Samuel was able to recall only two concrete instances: (1) Once a fight threatened between him and another boy. Samuel was uncertain whether to fight or not. Presently one side of his head "told" him to fight, while the other gave him the opposite advice. The "voices" evidently dramatized his uncertainty, which in this instance was probably based on his timidity and unwillingness to get into a fight. (2) A boy borrowed a penny from Samuel, promising to return it the next day. A few days passed and the loan was not repaid, so that Samuel began to wonder whether to speak to the boy about it. During his debate with himself, one side of his head said, "Don't ask him"; the other side said, "Ask him." Here again there seemed to be an element of timidity, perhaps a fear of antagonizing the boy.

Although Samuel was able to recall no further instances, he stated that the phenomenon occurred not infrequently. There was no correlation between the side of the head and the positiveness or negativeness of the command: that is, either positive or negative commands might on occasion be heard on a given side, although in each individual instance the negative command was heard on the side opposite to that of the positive. Not infrequently, when uncertain which side to obey, he resorted to "Eenie, meenie, miney, mo!"

Although I saw Samuel rather frequently, I did not again question him about the "voices" until May, 1930. He then recounted a third experience that had occurred in April, 1930: he was leaving the house, thinking of playing with some boys outside. Several of these boys had once before punished him in a fight, so that on the present occasion Samuel approached them with much hesitation. "Two things told me. One thing said, 'Go,' and something said, 'Don't go.' I guessed (decided) not to go, because I thought if I went they would hit me again."

When questioned again in June, 1930, Samuel seemed reticent and said briefly, "I don't mind it any more." His manner suggested to me that possibly he thought the hearing of the "whispers" was abnormal—a thought which might have inhibited his discussion of the matter.

*Comment.*—We have here an immature, unhappy, lonesome boy. Frail, timid, unable to compete with other boys, he loved to build up fantasies of heroism and bravery. He nursed a grudge against his step-father, whom he thought guilty of his mother's death, and he planned an elaborate, fanciful revenge. His immature, abstracted manner made boys call him "dumb-bell" and "cuckoo," which increased his isolation. Of the three hallucinatory episodes which he reported, at least two dramatized clearly his unwillingness to put himself in a situation where he might expect to appear at a disadvantage.

Because of Samuel's immaturity, his absorption in fantasy, his rather excessive tendency to disregard the demands of reality (to

the extent, for example, of habitually failing to use toilet-paper), and the auditory hallucinations, the question arises whether we are dealing here with an early schizophrenic reaction. During my many interviews with him I noted on several occasions phenomena resembling the basic schizophrenic symptoms described by Bleuler. He is probably an early schizophrenic—although for a really satisfactory answer to this question there would have to be some agreement on the criteria by which we may determine the existence of a schizophrenic reaction in its earliest stage.

*CASE 2.—Summary. Quiet boy of borderline intelligence. Father deserted, 1929. Mother dull, inadequate. Patient "nervous" since 1926 (age six). Impelled to run toward mother and sister with a knife (disguised incest-wish?). Disziness (neurotic?). Hallucinations began prior to the age of ten.*

Harry W., born in January, 1920, was referred in December, 1927, by the Jewish Welfare Society.

*Family Situation.*—The family consisted of the parents, a girl born in 1918, and Harry. The father, a teamster, began in 1924 to show progressive signs of postencephalitic Parkinsonism. He was thereafter unable to work, and in 1929 he deserted. The mother was a dull woman, with little insight or imagination, and unable to cope with the serious problems arising from her husband's illness and desertion. For reasons discussed below, Harry was placed in a private foster-home in May, 1930.

*Physical Data.*—The patient was a full-term child, delivered spontaneously. He walked at 14 months and talked at two years. A number of physical examinations made from 1924 to 1930 showed him to be a thin, pale boy, a mouth-breather, with enlarged tonsils and much dental caries. In 1928 he had an attack of acute bronchitis. His physical condition improved considerably after his placement in May, 1930, as a result of better care.

*Intellectual Data.*—Harry's school progress was unsatisfactory. After spending four semesters in the first grade, he was placed in a special class for backward children (September, 1927). Here he showed some improvement, but not much, and in the fall of 1930 he was still unable to do passing second grade work.

The intelligence rating was determined twice. In December, 1926, the intelligence quotient was 76; in February, 1930, it was 72. On both occasions Harry's test performances indicated borderline competency.

*Personality Data.*—The general impression one got of Harry was that of an unusually quiet boy. While he was always friendly and unafraid, one almost never saw him smile. This somehow seemed to be due to a certain lack of humor, rather than to any real unhappiness. In spite of his dullness there was a certain appeal about him, and one easily learned to like him.

Following the desertion of the father in 1929, the mother found it difficult to manage Harry. In January, 1930, she requested his placement, complaining that he was "nervous" and stubborn. He had night-terrors, wet the bed,

told lies, and occasionally stole. When she crossed him, he not infrequently picked up a knife and ran with it menacingly in her direction.

In an interview in January, 1930, which marked the beginning of a more intensive study of the case, Harry spoke sadly of the situation in his family. His father was "mad at my mother" and had gone away to New York. He related how his parents had quarrelled, and how he had tried to break his father's gambling habit by tearing up a deck of cards which he had found in the house. His mother was "sick," complaining of abdominal pains. Harry himself had been "nervous when I was a baby. My father made me nervous." (What does "nervous" mean?) "Like you shiver. I feel like I'm dizzy, like a fellow walking on a rope, so every time I hold on to things. Like you go up in an aeroplane and you look down and you think the aeroplane is going to fall."

In an interview in February, 1930, Harry defined "nervous" as follows: "Nervous is like you're going to kill somebody or shoot him." In the midst of this interview, the mother came into the room and said impatiently, in Harry's presence, "Don't bother with him so much. He is a sick boy and must be sent away." When the mother left the room, I questioned Harry about her remark. (What did Mother mean by that?) "I'm bad—nervous makes me bad." (What bad things do you do?) "Sometimes I get nervous and I need to run with a knife." (So what do you do?) "So I run with a knife, like I'm going to throw the knife and kill somebody." (To whom do you do it?) "To Mother and Sister." (Did you ever do it to Father?) "No." (Why not?) "Because he would hit me." (Why do you do it to Mother?) "Because I get nervous." (What makes you do it?) "If somebody hits me." (For example?) "If my mother hits me, I get nervous and I need to run with a knife, so my mother needs to take the knife away." (Mother just said we should send you away. Do you want to go away?) "Yes." (Where to?) "A hospital—any place—I want to get the nervous out of me. I want to go in a home—any place where you would send me." (What kind of home?) "Not a home where you live; a home where you keep bad people and nervous." (You also mentioned a hospital. What would they do to you in a hospital?) "They would give me needles, and the nerves would get out. When I was in the ——— Hospital (1928), a boy was nervous and every day they gave him needles." (What did he do when he was nervous?) "He's got a little knife, so every time he holds it like this" (dagger style, similar to the way Harry held his knife when "nervous").

In March, 1930, Harry gave further data about his dizziness. He felt dizzy (1) when someone hit him (boys at school bullied him); (2) when he climbed trees; (3) when he climbed hills, and even when he saw a picture of a hill at the movies; (4) in the midst of tumult, such as when people applaud at the theatre; (5) when he heard certain "voices" (to be described below).

In July, 1930, when seen for the first time subsequent to his placement (May, 1930), Harry seemed a much more contented boy. He was with a foster-mother ("Aunt Jennie") whom he respected and who cooked well,

unlike his real mother. He was no longer "bad" as before. Formerly he used to go out at night without notifying his mother. (Do you do it now?) "No." (What do you do now?) "I may ask my Aunt Jennie if I may go" (significant was the sudden appearance of the word "may" in his vocabulary). His "nervousness" was much better, although "sometimes my hand still shivers." Succeeding interviews all brought out the fact that Harry was very contented in his new home.

*Hallucinations.*—At an interview in January, 1930, in relating a dream, Harry remarked, "Sometimes I hear bad voices in my dreams." Casually he was asked, "Do you ever hear them when you are awake?", to which he replied affirmatively. When asked for specific instances, he gave the following: "Sometimes, when I don't want to go to Hebrew School, the bad voice says, '*Don't go to Hebrew, don't go to Hebrew . . .*' (a rhythmic perception, with emphasis on the first beat). The good voice says, '*Do go to Hebrew, do go to Hebrew . . .*'" (1).

Invariably the "good voice" was perceived in the right ear, the "bad voice" in the left. When asked, "How do these voices sound?", Harry replied, "It sounds like it's coming from my mind." The bad voice sounded like a "rough voice"; the good voice was of a more pleasing quality, "like a person talking." Sometimes the bad voice was accompanied by a sensation as though he were being "pushed" (in the direction in which the bad voice directed him to go); when this occurred, Harry almost always felt dizzy and, if possible, sat down for a little while. For example, one day when he was walking to Hebrew School, "the bad voice said, '*Go back, go back . . .*,' and it pushed me back, so I had to hold on to something." Not infrequently the conflicting voices "have a fight, like an argument." Such occasions would be accompanied by dizziness and a noise in the forehead, "like they throw chairs around, like they hit each other with a milk-bottle."

In March, 1930, Harry reported the following additional instances. Once, when he felt a particularly strong dislike for his father, the good voice admonished him, "*Like your father.*" The reply of the bad voice was, "*Don't like your father*" (2). Other remarks of the bad voice were, "Run away from home" (3), and "Be a crook" (4).

The next time Harry was questioned about the "voices," in September, 1930, he reported that since his placement (in May, 1930) he had heard them only once. The occasion was two weeks prior to the interview, when Harry visited the movies in the company of his foster-brother and foster-sister. "We saw a bad picture—about fighting. When I see fighting, it makes me feel dizzy. So the good voice said to me, '*Go home,*' but the bad voice said, '*Don't go home*'" (5).

In November, 1930, Harry reported that the voices were no longer heard. "They're out of my mind. I don't think about them no more."

The date when the voices first made their appearance is not known. According to his mother, Harry began to be "nervous" about 1926.

*Comment.*—We have here a physically frail, intellectually retarded boy, without any striking evidence of emotional immaturity.

He was fully aware of the conflict of his parents, and he seemed sad as he discussed their quarrels and separation. He disliked his father and sympathized deeply with his mother. Whether his habit of running toward his mother with a knife represents a disguised partial fulfillment of an incest-wish is a matter which cannot be answered definitely from the data available in this case.

The hallucinations in this case clearly dramatized the indecision that Harry felt when he had to make a compromise between what he *wanted* to do and what he felt he *ought* to do. In the first two instances there was a "good voice" which counselled the path of rectitude and a "bad voice" which urged the line of least resistance. In the third and fourth instances the "bad voice" alone was reported. The significance of the fifth episode will be discussed below.

*CASE 3.—Summary. Likable boy, winning personality. Low average intelligence. Witnessed murder of father at age of three, in Russia. Came to America at six. High-strung. Unable to get along with devoted but inadequate mother. Evidence suggestive of existence of guilt-feeling, arising perhaps from unconscious incestuous mother-attachment. Hallucinations began at age of seven or eight.*

Charles B., born in October, 1917, was referred in November, 1929, by the Big Brothers Association.

*Family Situation.*—Charles was born in Russia, during the troubled days of the Revolution. He was the youngest of seven children. In 1920 the father was killed in a massacre, with Charles a terrified witness hiding beneath the bed. Soon after this the mother and the children fled to Germany, where they remained until the fall of 1923, when all of them, with the exception of two girls, came to America.

Ever since their arrival in America, the family, owing to their unfortunate circumstances, have been dependent on one or more social service agencies. The mother (born in 1886), a plain woman of peasant stock, was very high-strung and excitable. With her father killed during the War, her husband murdered shortly afterward, herself suddenly thrust into a new land with five children, two other children—girls of tender years—remaining in Europe under precarious conditions, Mrs. B. was the very picture of insecurity. The dreadful events of the past affected the children no less than the mother, and they were all excitable and "nervous." As a result the household was often in a state of turmoil, the children having little respect for the mother.

In January, 1926, the mother married a huckster. One child was born (1926) to this union.

*Physical Data.*—Charles was a full-term baby; labor was spontaneous. He walked and talked at one year. His general health was always good, and at the time he was referred to the Psychiatric Department he was a



well-developed, stocky, ruddy youngster. It is noteworthy that in December, 1925, when examined at the Mt. Sinai Hospital, Charles was found to have evidence of partial mixed deafness on the right side. Bone conduction on the right was greater than air conduction.

*Intellectual Data.*—Charles did not do well at school, and it was therefore necessary, early in 1930, to place him in a special school for backward children. He had at that time failed to pass beyond the fourth grade. In the fall of 1930 he was transferred back to the regular school, in the fifth grade, and in the spring of 1931 he was reported to be doing satisfactory work.

The intelligence rating was determined twice. (1) In November, 1925, the intelligence quotient was 90, and the general conclusion of the tests was that Charles was of normal competency. (2) In November, 1929, the intelligence quotient was almost the same (88), but his performances as a whole suggested a diagnosis of low average competency.

*Personality Data.*—All who knew Charles were unanimous in liking him. He was a sunny-faced lad, radiating enthusiasm and flashing a ready smile. He had a pleasant singing voice and greatly enjoyed rendering popular songs for appreciative listeners: his greatest thrill was to perform at the local movie house on "amateur night." One of his teachers described him as "pretty much of a regular kid"—an apt description.

One of Charles' outstanding problems was his restlessness. He always gave the impression of being keyed up to the limit. Partly for this reason and partly because of insufficient familiarity with English, he spoke in an explosive manner, sometimes with a moderately severe stutter. He was "unable to sit still." Thus, he told me of one occasion when he went with his sister to the movies to see Harold Lloyd in "Welcome Danger." The picture was full of hair-raising situations, and Charles was bouncing up and down with excitement. At one point in the picture the hero is sitting on a carpet which, without his knowledge, is slowly being pulled through a doorway into a secret chamber, where enemies are waiting: Charles could no longer contain himself and in a loud "stage whisper" he called out, "Get off that carpet!" When excited, he frequently bit his nails, partly because, as he said, this helped to quiet him.

Charles and his mother, both of them high-strung, got along very poorly together. A further difficulty in this connection was the fact that the mother was not an intelligent person. To the problems of American life she brought a mind trained to the simplest rural life. Accordingly in a short time she and her older children found that they were looking in diametrically opposite directions. The older children therefore put her down as a stupid person—a disdainful attitude which Charles quickly acquired by imitation. Charles and his mother were always wrangling, and any form of training or discipline was out of the question.

In spite of his open disregard and scorn for his mother, Charles was in reality quite attached to her, if we may judge from a dream which he reported in March, 1930. This dream, according to his statement, occurred when his father was still alive. "I dreamt that my father and mother and

I were walking on the street, and all of a sudden we were attacked by the Bolsheviks, and they killed my father; and just when they were going to kill my mother, I jumped on the soldier and hit him with a stone in the head and the blood started running. Then I took my mother in a little broken house. Then when the soldiers went away I took Mother home and I also dragged my father home. There he died. His last words were, 'Take care of Mother.' At the time this dream allegedly occurred, Charles could not have been much more than three years of age, if not under three. It therefore seems not unlikely that the "dream" was a fantasy which he in later years remembered as a dream. In either event the dream or fantasy indicates an unconscious attachment to the mother, accompanied by jealousy of the father. (Reference will be made to this point below.)

A further difficulty with Charles was his unconscious jealousy of his little half-brother. Thus, at our first interview he related a dream in which "my little brother Martin was blind—God forbid he should be that way." In another dream the house caught fire and Martin was badly burned about the body. When questioned about his attitude toward Martin, Charles professed the greatest love. He spoke affectionately of the child's cuteness, and described how he had helped him to learn to walk by beckoning to him from the center of the room. His professions of love were, no doubt, sincere.

In November, 1929, the difficulty between Charles and his mother had become so acute that Charles was placed with a sister, then three months married. This sister was no more intelligent than her mother, and in a short time Charles began to prove equally troublesome to her. Indeed, she complained that only when her husband was at home did Charles behave himself. Therefore, in February, 1930, it became necessary to plan for placement outside the family.

As between a private foster-home and an institution, Charles preferred the former. Someone had told him of a certain rich man who wanted a foster-child, and Charles already visioned himself as the lucky protégé of this man. The agencies who looked after Charles also favored private foster-home placement, since it was felt that his attendance at special school would prove detrimental in an institution, where he would be unfavorably singled out in this respect. The mother, however, made a very emotional plea against private foster-home placement, the basis of which was her great devotion for Charles, which would not permit her a moment's happiness if another woman usurped her prerogative of feeding and caring for her son. Charles finally consented to go to an institution (March, 1930). In spite of the fact that he had to stand a good deal of teasing because of his special school, his adjustment in the institution has been very good. The reason for this probably lies in his winning personality.

*Hallucinations.*—At our first interview, in November, 1929, Charles spoke of the reason for his coming as follows: "They say I am nervous—I bite my nails; in school I can't sit still; I'm too big for my grade." Speaking rapidly and nervously, he continued: "In school if I put down my pencil, my heart tells me to pick it up; I pick it up and then my heart tells me to

put it down; and then I put it down, and it tells me to pick it up again, and it goes on like that till my heart doesn't tell me any more (1). If the teacher says to look, my heart says, 'Don't look' (2)."

Charles said that the phenomenon seemed to him like a voice. He knew, however, that the perception did not arise from an external stimulus; rather "it's like a little teeny voice *inside*." The phenomenon began at the age of 7 or 8.

Charles was able to recall the following concrete instances, in addition to those already mentioned. (3) One month previously, while walking with his mother, after a rain, they came to a small puddle, which he jumped over. After they had walked on a few yards, "my heart said, 'Step in the water,'" whereupon he returned and stepped into the puddle. (4) Once, while riding in his brother-in-law's car, they passed a traffic officer waving his arms as a semaphore. As they passed him, Charles' "heart" said to him, "Look back at him"; Charles looked back for a moment. His "heart" repeated the command four or five times, and each time he obeyed. Finally, his "heart" said, "Sit still." (5) At school it happened a few times that Charles discovered an error in his examples and started to erase it, whereupon his "heart" said, "Don't do it." Charles thereupon put down again what he had originally written. (6) Sometimes when he was on the horizontal bar and got off, his "heart" said, "Stay on." (7) During supper his "heart" would sometimes tell him, "Don't eat," and he would have to stop for a minute or so. *This was more apt to happen when he was very hungry.* (8) On the other hand, in October, 1928, after fasting all day on the Day of Atonement, as he sat down to an eagerly anticipated meal, his "heart" did the right thing by telling him, "Eat fast." He ate so quickly that his mother asked him what was the matter; he replied that he was very hungry. "I didn't want to tell her the real reason, because she would say I'm crazy, she would laugh." He had once spoken to a cousin (a grown woman) about these matters, and she had laughed.

Charles was scrupulous in his adherence to Jewish tradition, and it is noteworthy that sometimes his "heart" told him to obey, and sometimes to disobey, traditional rules of conduct. Thus, when he felt like eating ice cream after meat (forbidden), his "heart" would tell him not to do it (9). On the other hand, on the Day of Atonement, in 1928, his "heart" told him to eat, in violation of Jewish law; he refused (10). The same day he was wondering whether to wash his teeth, which is forbidden on this holiday. Charles knew it is forbidden and therefore did not want to do it, but his "heart" said, "Aw, go do it anyhow." In order to avoid the perplexity of the tempted man, Charles hurriedly put on his coat and ran out of the house (11).

The next time the phenomenon was discussed with him, in February, 1930, Charles said that it had ceased to occur about three months previously (that is, one month after he was placed with his sister). He was happy that it had stopped: "Gee whiz, I hated to go where it told me." On further questioning, however, one learned that it still occurred. Thus, (12) a few days pre-

viously, in emptying the basin that is beneath the refrigerator, he accidentally spilled some water on the floor. He wiped it up and was about to go away, when his "heart" said, "Wipe it again," whereupon "I had to wipe it *so clean!*" At night he was afraid to go into the bathroom, and his "heart" would tell him, "Go in" (13).

The phenomenon was not discussed again until May, 1930, when he reported that it had ceased some time prior to his placement in the institution in March. Again, as in February, he expressed a feeling of relief, saying that his "heart" had been in the habit of telling him to do things that were uncomfortable.

On a later occasion (July, 1930), in discussing the phenomenon, Charles emphasized the element of compulsion that had been associated with it. "Something told me (indicating his heart), so I had to do it." He was emphatic in saying of the phenomenon, "I don't like it!"

*Comment.*—While Charles was a little below the average in intelligence, his dullness was not conspicuous. He was a likable boy, a good mixer, popular because of his talent as a singer. His general physical condition was good. He was very high-strung, probably as a result partly of the precarious environment in which he had been brought up. His father murdered before his eyes; several years of being buffeted about in post-War Europe; an ignorant mother whom he did not respect (although he did not dislike her); a household agitated by constant quarrelling; sensitiveness over his inability to do well at school—all these seem to have been prominent factors in his instability.

The hallucinations reported by Charles are not as easy to interpret as those of Samuel and Harry. In all of the three episodes reported by Samuel and in three of the five reported by Harry the hallucinations took the form of a good voice and a bad voice, both of them urging the patient in contrary directions. In none of the 13 episodes reported by Charles did this figurative tug-of-war occur. In the first episode, it is true, his "heart" commanded him alternately to pick up a pencil and to put it down, but there was no simultaneous tugging in opposite directions. In the remaining 12 episodes the "heart" simply directed Charles to follow a given line of conduct.

Consideration of the content of Charles' hallucinations shows that in five instances (numbers 1, 3, 4, 6 and 12) the real "meaning" of the hallucination is not clear: from the available data, one could do no more than hazard a mere guess. The remaining instances are not quite so puzzling. In numbers 2, 10 and 11 the

hallucination strengthened and encouraged an impulse to disobey authority; on the other hand, in the ninth instance it counselled obedience to authority. In the eighth instance it told him to eat quickly after an honorable all-day fast, the reason for this superfluous admonition being open to conjecture. In the thirteenth instance it encouraged him to enter the bathroom at night, in disregard of a fear of the dark.

It is noteworthy that in the fifth and seventh instances the hallucinations served to punish the patient—in the former by forcing him to perpetuate an error in an arithmetic paper, and in the latter by telling him not to eat, particularly when he was very hungry. These instances may perhaps justify one in suspecting the existence of a hidden feeling of guilt. Further evidence of the existence of such a feeling is found in a dream reported by Charles in March, 1930: "Last night I dreamt I was riding a bike—it was *my* bike and I was real happy (Charles had been wanting a bicycle for some time). Then all of a sudden I got careless and I ran into a fire-plug and when I got up I saw my bike was busted. I gave it to a bicycle man to have it fixed, but he said it couldn't be fixed. I dragged it home and my brother-in-law (who had given him the bicycle) hit me. Then I woke up." In this dream we see an undisguised fulfillment of the desire for self-punishment. Charles' feeling of guilt may be connected with his strong (unconscious) attachment to his mother: we have already noted the dream (or fantasy?) alleged to have occurred before the death of the father, in which the father was killed, leaving Charles alone with his mother.

CASE 4.—*Summary. Boy of borderline intelligence. Sensitive over the conspicuous intellectual superiority of his younger brothers. Compensation through what seems like a grandiose delusion regarding his own ability: he said he was the "smartest boy" in his class, as bright as his brother, etc. Hallucinations began at about fourteen and a half (over a half year after the onset of puberty).*

Joseph G., born in August, 1915, was referred in January, 1929.

*Family Situation.*—The father was an unskilled workman. He and his wife left Russia shortly after the beginning of the World War, and went to Roumania, where their first three children were born (Joseph being the oldest). After nine years of untold hardship the family emigrated (October, 1923) to America, where another child was born. In 1925 the mother began to suffer from asthma, an ailment which eventually caused her death, in April, 1930.

*Physical Data.*—Joseph was born at term, labor being spontaneous. He walked and talked at the age of one year. A number of physical examinations, from 1926 to 1930, showed a well developed, well nourished boy. The only outstanding physical defect was dental caries, noted in 1926.

Pubic hair began to make its appearance in the middle of 1929.

*Intellectual Data.*—Joseph did not enter school until his arrival in America at the age of eight. His school progress was unsatisfactory. Owing to poor behavior in the class-room (arising no doubt from his inability to attain any degree of success in his school work), he was transferred in the fall of 1929 to a special school for poorly disciplined children.

The intelligence rating was determined twice. In January, 1929, his intelligence quotient was 75; in January, 1930, it was 85. On both occasions his performances indicated borderline competency.

*Personality Data.*—Joseph was a dull boy, pleasant to outsiders but disobedient and stubborn at home. There was little opportunity for a satisfying home environment: the father worked hard and was away every day from early morning until midnight, while the mother frequently had to go away to the country because of her asthma. Joseph was conscious of his father's poverty: "It makes me feel sad to see how my father has to get up early in the morning and work hard" (December, 1929).

Perhaps Joseph's most important personality problem was his awareness of his intellectual inferiority. It so happened that his brother Percy (born in 1916) was a very bright boy, and it must have been humiliating to Joseph to be surpassed by a younger brother. (When Joseph was in the fifth grade, Percy was already in the sixth). Joseph's reaction to this situation was significant. At an interview in January, 1929, he tried to belittle Percy by saying, "When Percy is away at work, Saturday night, it's quiet at home. He makes all the trouble at home." In accounting for the disparity in their school achievement, Joseph stated, "I was sick for a year."

Even more significant statements were made in an interview in December, 1929—the first interview after Joseph's transfer to the special school. Joseph said that he had been transferred "for being bad. I used to talk. I *always* used to know my work, but I used to laugh and my teacher used to blame it on me, what somebody else done. It was partly my fault, but mostly the teacher's." In regard to the statement that he had always used to do his work well, Joseph added, "I used to get the highest marks in arithmetic. I was the smartest boy in the class, even after the teacher cut down my marks because I was bad. The teacher said my marks were so good it was a shame to cut them down." When asked what he intended to become later in life, Joseph's face clouded as he replied, "Just be a plain worker. That's all I know. I can't be nothing better now, when I go to *that* school (the special school)." Prior to his transfer to the special school, "I thought I could be something—a person that goes through high school and be educated and could make a good living, like a druggist. I can't be nothing now (gloomily). I guess I'll have to work like my father. It makes me feel sad." After speaking of Percy and a still younger brother Morris, Joseph said, "Morris makes



the best marks, but me and Percy have the best sense. Me and Percy have the same sense, but I understand things better. Percy's got a real bad temper."

*Hallucinations.*—At an interview in July, 1930, Joseph remarked, "Sometimes when I sit thinking, something gets in my head." (Tell me about it.) "Sometimes I do the wrong thing by listening to what's in my head." (What is in your head?) "Words saying, 'Do it,' or 'Don't do it.'" (Are you awake when you hear these words?) "Yes." (How does it sound?) "It sounds quiet, like if you're whispering in somebody's ear. It gets in my ears and passes through." (What else do you hear?) "That's all it says." (What is it that does the "saying"?) "The whispered sound." (What makes the whispered sound?) "Something that I'm not doing right." (Where does it come from?) "It comes from Heaven—I don't know where it comes from." (Why did you say it comes from Heaven?) "I just guessed it, but I don't know." (Where do you *think* it comes from?) "I don't know exactly. It comes from my brain." The "whisper" was not localized in either ear.

Joseph stated that this phenomenon appeared for the first time over three months previously—in other words, while his mother was still living. He was able to recall only three concrete instances. (1) Once his grandmother, who was at home looking after the family, said to him, "Joseph, don't go outside; wait till Pop comes home and eats supper, and then you can go outside." Joseph wanted to go outside, "so something in my head said, 'Do it,' and something else said, 'Don't do it.' I didn't know what to do, so I went outside." (2) "Once my grandmother said I shouldn't go swimming and something in my head said, 'Go ahead,' so I went." (3) Once Joseph was wondering whether to play with some picture postcards of actors, prize-fighters, etc., belonging to Percy. Percy had warned Joseph not to tamper with them; nevertheless Joseph wanted to play with them. "A voice came and said, 'Don't take them.'" Joseph disregarded the "voice" and proceeded to play with the cards. The "voice" in this instance differed from the "whisper" in the other instances: in the present instance it sounded like "my voice—a rough, nice loud voice—it came from my head like this here (indicating top of head) and went right in."

*Comment.*—We deal here with a retarded boy, sensitive over his intellectual inferiority to his younger brothers. At first (January, 1929) he reacted by excusing his school performance (inferior to Percy's) on the ground that he had been ill a year, and by belittling Percy for his allegedly bad behavior at home. In December, 1929, his compensations seemed more far-reaching. He asserted that he and Percy "have the same sense," but that he (Joseph) "understands things better." He boasted of his intellectual feats, and said that prior to his removal from the regular school he had been the "smartest boy" in the class; even after his

marks had been reduced by virtue of his misbehavior, he still had led his class-mates, etc.

The question arises, Did Joseph in making these statements know that they were untruthful? If so, they are of no importance, other than as an indication that he realized and tried to conceal his inadequacy. On the other hand, did he possibly believe himself to be telling the truth? If he did, the statements represent a grandiose delusion. The impression that Joseph made on me was that he really *did* believe his statements of his intellectual superiority. If this impression is correct, the question arises whether he is manifesting early symptoms of a schizophrenic reaction.

The three instances of hallucination were all concerned with the question of whether he should conform to the rules of proper conduct—that is, whether to obey his grandmother, and, in one instance, whether to respect Percy's wishes in regard to the latter's property. In one instance "something in his head" told him to obey his grandmother, and "something else" told him to disobey. In the second instance, only one voice appeared, telling him to disobey his grandmother, as he no doubt secretly wished to do. In the third instance, again only one voice appeared, this time telling him to conform.

#### RÉSUMÉ OF SIGNIFICANT CASE DATA.

(1) *Sex*.—All four children were boys. The children seen in the Psychiatric Department of the Community Health Center are fairly evenly divided between the sexes. However, four is too small a number to justify one in assuming the existence of a sexual factor. We must remember also that in each of the cases the hallucinations were discovered accidentally; there are probably other cases in which hallucinations existed but remained undiscovered.

(2) *Age of Onset*.—In the case of Samuel (Case 1) the age at which the hallucinations began is not known. When he first spoke of them to me, he was already 11½ years old. In the case of Harry (Case 2) the age of onset is again unknown. The mother stated that he began to be "nervous" at about the age of six; he first mentioned his hallucinations at the age of exactly 10. Charles (Case 3) stated that his hallucinations began at seven or eight. Joseph (Case 4) stated that his hallucinations began at the age of

about 14½. This was over half a year after the onset of puberty—the only one of the four cases in which the hallucinations began after puberty.

(3) *Duration*.—Samuel, at 12 years and 4 months, said the hallucinations had ceased to occur. Harry, at the age of 10 years and 10 months, made the same statement. Charles, at 12 years and 9 months, stated that they had ceased when he was about 12½. In the case of Joseph, the matter came up for discussion only once. At that time the hallucinatory experiences were still occurring.

I found it difficult to know whether to accept the statements of the first three boys relative to the cessation of the hallucinatory episodes. The fact that I remembered the episodes seemed to make them feel somewhat sensitive (especially Samuel). Though I questioned them frequently about dreams and fantasies, they were not sensitive about these, the difference apparently being that they understood dreams and fantasies to be universal phenomena, whereas they seemed to have an inherent realization that hallucinations are beyond the beaten path of experience. This was well exemplified by Charles who once told a woman of his experiences, whereupon she laughed; on a subsequent occasion, when under ordinary circumstances he might have told his mother, he refrained: "I didn't . . . tell her . . . because she would say I'm crazy: she would laugh."

(4) *Factors in the Home*.—

(A) *Poverty*.—All four boys came from homes of great poverty, but this fact diminishes in significance when one considers that almost all of the patients seen at the Community Health Center are clients of social agencies. (The Community Health Center is maintained by the Federation of Jewish Charities.)

(B) *Family Crises*.—Major family crises occurred in the first three cases, such as the murder of the father (Case 3); the desertion of the father (Cases 1 and 2); and the remarriage of the mother to a neuro-syphilitic and cruel step-father and her subsequent death (Case 1). In Case 4 the mother was seriously ill with asthma for a number of years and finally died.

(5) *General Intelligence*.—It is striking that all four boys had intelligence ratings below the average. It cannot be doubted that consciousness of deficit in this sphere was a major problem with each of the boys.

We cannot conclude that auditory hallucinations are found only in children who are below the average in intelligence, for there have been a number of undoubtedly intelligent historical persons who heard "voices" during childhood.

(6) *Personality Problems*.—Two of the boys, Samuel and Joseph, had grave personality problems, and probably had beginning schizophrenic symptoms. On the other hand, Harry and Charles, while badly adjusted, impressed one as having much more adequate personalities. Charles especially is a rather wholesome lad, the most promising of the four.

The fact that all four boys had difficult personality problems does not necessarily mean that hallucinations in a child indicate he is severely maladjusted. The four boys were selected from a series of children referred for personality and behavior problems. We do not know how many hallucinating children would be found in the study of a well-adjusted series.

(7) *Hallucinations*.—Under this topic we may consider several points.

(A) *Perceptual Quality of the Hallucinations*.—Samuel described the experience with the words, "My mind tells me . . .," or "I hear a voice. . . ." It is "not a real voice," nor even a "whisper." He thought that "silent whisper" would describe it correctly. Harry spoke of a "good voice" and a "bad voice." Referring to both, he said, "It sounds like it's coming from my mind." The bad voice always sounded "rough"; the good voice had a more pleasing quality. When the two voices "had a fight," there was a noise in his forehead, "like they throw chairs around, like they hit each other with a milk-bottle." Charles described the experience by saying, "My heart tells me . . ." (to do various things). He also said, "It's like a little teeny voice inside." On one occasion, indicating his heart, he said, "Something told me to. . . ." Joseph spoke of "something in my head. Sometimes I do the wrong thing by listening to what's in my head." On further questioning he said that in his head were "words saying. . . ." "It sounds quiet, like if you're whispering in somebody's ear. . . ." He referred to "the whispered sound." On the other hand, in the third episode reported by Joseph, the perception was like "my voice—a rough, nice, loud voice."

Considering these descriptions, especially those given by Samuel and Joseph, one can only marvel at the aptness of the phrase, "the still small voice." German authors speak of the occurrence (among adults) of *Gedankenlautwerden*—the hearing of one's thoughts as though by an echo (Bleuler, page 81).

(B) *Localization*.—Samuel differentiated between "voices" in the left and in the right ear. When the voice occurred in the right ear, this ear "clings a little—like 'click.'" When there was no "click," he assumed that the "voice" was in the left ear. Harry, who differentiated between a "good voice" and a "bad voice," said that invariably the former was confined to the right ear and the latter to the left. (One wonders whether the association of "good" and "right" had anything to do with the origin of this localization.) There was no unilateral localization in the cases of Charles and Joseph.

Charles' reference of the "voice" to his heart is noteworthy. So is Joseph's statement regarding the voice in his third episode: "It came from my head (indicating top of head) and went right in."

(C) *Accessory Sensations*.—In Harry's case, the "bad voice," urging the patient to go in a certain direction (*e. g.*, away from Hebrew School), was sometimes accompanied by a sensation as though Harry were being "pushed" in that direction. When this occurred Harry almost always felt dizzy, so that, if possible, he sat down or held on to something until the dizziness passed over.

It is also noteworthy, in Harry's case, that the commands of the voices were delivered in a rhythmic manner: *e. g.*, "Don't go to Hebrew, don't go to Hebrew, etc."

(D) *Content of the Hallucinations*.—We may here survey the content of the 24 episodes reported by the four boys.

In the case of three of the boys, the content of the hallucinatory episodes showed a decided uniformity. Thus, in each of the three episodes reported by Samuel, we find the patient timidly hesitating to approach other boys, who, as we know, scorn him as a weakling; in the midst of his uncertainty the voices appear, one telling him to keep away from the boys, and the other advising him to the contrary. In each of the three episodes reported by Joseph, the question before the patient was whether to obey (twice his grandmother and once his brother) or whether to gratify his own

whims; the "whispers" told him which to do. In the case of Harry, who reported five episodes, the first four dealt with occasions when the patient was sorely perplexed with problems of obedience and conformity, such as whether to go to Hebrew School, whether to run away from home, etc. (Harry's fifth episode, which deals with a different problem, will be discussed below.)

On the other hand, this uniformity of content is lacking in the case of Charles, who reported a total of 13 episodes. The content of his hallucinations has already been commented on in the report of the case, under *Comment*.

When one considers the entire 24 episodes, certain points stand out. In each instance the content of the hallucination consisted of a brief but complete sentence, *always in the imperative mood* (whether positive or negative, or both). This is in marked contrast to the hallucinations of adults. Hallucinating adults frequently complain that their "voices" deliver sneering, taunting messages; profane, obscene and condemnatory expressions are "heard" and resented. On the other hand, in the 24 episodes reported by our four boys, the voice or voices simply gave commands, ordering the patient to do or not to do a certain specific thing. Hallucinating adults frequently "hear" words and phrases instead of sentences; our boys always "heard" sentences. Adults are sometimes called by name; our boys never were. Adults, especially those suffering from alcoholic hallucinosis, sometimes "hear" themselves spoken of in the third person; our boys were always addressed directly.

In seven of the 24 episodes (Samuel's three episodes; Harry's first, second, and fifth; and Joseph's first) there were two conflicting voices, both trying to urge the patient in opposite directions. In the remaining episodes there was one voice, without hallucinatory opposition. It is, of course, possible that if these remaining episodes were better remembered, some of them might be shown to involve two voices rather than one.

The occurrence of two conflicting voices is strongly reminiscent of a similar phenomenon seen in some cases of adult hallucination. Thus, Bleuler, on page 79 of his work on schizophrenia, states: "Hallucinations may express the corresponding wishes and hopes and fears of the patient. The ambitious patient perceives signs which hold out to him the promise of power, but which also reveal the machinations of his enemies. The patient who chafes at con-



finement hears voices which promise freedom very soon, together with other voices which designate the loss of freedom as permanent. . . . Very often the voices are contradictory. . . . The rôles of pro and con are often assumed by different voices."

In at least 10 instances (Harry's first, third and fourth episodes; Charles' second, ninth, tenth and eleventh; and Joseph's three) the patient was confronted with a problem of social conformity, the "voices" counselling him either to conform, or not to conform, or both. It is probable that this also applies to Harry's second episode, the question of whether or not to "like" his father undoubtedly involving considerations of the unacceptability of any attitude other than filial devotion. Four of these episodes (Harry's first, and Charles' ninth, tenth and eleventh) centered about the question of whether to conform to inconvenient religious duties.

In at least three instances (the "bad voice" in Harry's fifth episode; and Charles' fifth and seventh episodes) the "voice" counselled a definitely self-punitive course of action. Thus, Harry was at a movie where he saw a picture with "fighting" scenes, which made him feel dizzy and uncomfortable: while the "good voice" told him to go home, the "bad voice" said emphatically, "*Don't go home.*" Similarly, Charles, erasing an error in his examples at school, was compelled by his "heart" to leave the error uncorrected. This happened on a number of occasions. Also, when very hungry, Charles was apt to "hear" his "heart" say, "*Don't eat.*" It is possible that a punitive component exists also in certain other episodes—for example, in the case of the "whisper" which told Samuel to fight the other boy, when he (Samuel) would undoubtedly have been most eager to avoid an encounter at all costs.

In the case of Charles, the "voices" frequently had a compulsive quality, very much like the imperative impulses of patients with compulsion neurosis. Thus, in the twelfth episode, when his "heart told" him to go back and wipe up again some water he had spilt (and had already wiped up once), he felt constrained to obey and, as he said, "*I had to wipe it so clean.*" When the "voices" no longer occurred, he was glad, saying, "*Gee whiz, I hated to go where it told me.*"

(E) "*Functions of the Hallucinations.*"—It will be apparent from the foregoing material that the hallucinations participated in the accomplishment of certain ends, and we may at this point formulate these "functions."

(a) *Defense*.—In some instances the "voices" protected the patient. For example, Samuel, who was timid, frail, and immature, dreaded physical encounter with other boys, since he was certain to be at a disadvantage with boys of his own age and size. When a fight threatened, one of his "voices" told him not to fight; this "voice," in other words, functioned to protect Samuel from corporal punishment and humiliation.

(b) *Enhancement of Self-Esteem*.—Samuel, like other boys, did not like to look upon himself as a coward, and so when one voice counselled pacifism, the other urged him to be aggressive. It was as if the latter voice "said" to him: "Go ahead and fight the boy. You can 'lick' him without any trouble." This voice thus prevented too painful a realization of Samuel's weakness. This function of a hallucination is analogous to the self-aggrandizing function of certain types of fantasy.

(c) *Satisfaction of Instinctive Cravings and of the Desire for Pleasure*.—For example, Joseph wanted to go swimming, but had been told not to; "something" told him to "go ahead." In the case of Charles, it is possible that if we knew more about him, we would find some form of disguised instinctive gratification at the basis of some of the "bizarre" things which his "heart" commanded him to do, such as to retrace his steps and walk into a rain-puddle (third episode). Furthermore, it is possible that where the "voices" dictate a rebellion against religious observance, this rebellion is symptomatic of a perhaps unconscious striving to rebel against the father, with all that that implies. In regard to Samuel's second episode, when one considers his strong coprophilous tendencies and also the intimate connection between money and feces and between stinginess and anal-erotism, it seems not improbable that Samuel's desire to dun the other boy rested in part on deep-seated instinctive cravings and that one of the "voices" took a hand in promoting the satisfaction of these cravings.

(d) *Repression of Unwelcome Instinctive Cravings*.—For example, when Harry experienced a strong dislike for his father, thus gratifying to some extent certain unacceptable instinctive cravings, a "good voice" admonished him, "Like your father," in this way helping to repress the unwelcome cravings.

So far as the satisfaction and the repression of instinctive cravings are concerned, it is probable that both of these functions are

bound up with each one of the hallucinatory episodes. The four cases have, after all, been studied comparatively superficially. Deeper penetration into the psychic life of these patients would probably reveal a most intricate maze of instinctive and social strivings, with the "voices" asserting the demands of either or both of the opposing forces. Indeed it is inconceivable that perplexity about whether to go to Hebrew School would in itself be sufficient to precipitate a hallucinatory episode in Harry. It seems more plausible to suppose that back of this perplexity was a conflict about the acceptance of the father's authority, together (perhaps) with incestuous conflicts in which the father appears as a rival to be overthrown.

(e) *Expiation of a Sense of Guilt.*—This function may be seen in the punitive episodes alluded to above.

Without doubt in each hallucinatory episode more than one function was exercised. Thus in Samuel's second episode, the desire to satisfy certain instinctive cravings, the desire to repress these same cravings, the desire to protect himself against appearing at a disadvantage in a fight, the desire to maintain an air of courage and self-confidence—all these desires, no doubt, struggled for recognition and satisfaction.

It must be emphasized that in outlining the apparent *functions* of the hallucinations we are not thereby committed to a theory of the *origin* of the hallucinations. A "lazy" man who develops serious heart disease is excused from the necessity of working to support himself and his family. His illness serves to protect him from the troublesome responsibilities of life, yet no one would say that his aversion to work was the cause of his heart disease. Similarly, in indicating that the hallucinations fulfill certain functions, we have not proved anything about ultimate origin. We can only say that *probably* certain necessities constitute a *factor* in the origin of the hallucinations. We cannot say that other factors are ruled out, such as, for example, anatomic and physiologic defects in the auditory apparatus, and, perhaps, a certain type of psychic make-up.

(F) *Insight.*—All four of the boys recognized that the "voices" originated in themselves. None suspected an external agency as the source of the "voices."

(8) *Condition of Auditory Apparatus.*—Complete otologic and vestibular investigations would have added valuable material to this study, but the boys were sufficiently sensitive to make it seem unwise to include these investigations. Nevertheless, in two of the boys there is evidence suggestive of an organic disturbance of the auditory apparatus. Charles in 1925 was found to have partial mixed deafness in the right ear. Samuel noticed during some of his hallucinations a "click" in the right ear; when this occurred he knew that the "whisper" was localized in that ear. In the absence of a "click" he localized the "whisper" in the left ear. This would suggest the existence of some unilateral abnormality in the hearing apparatus. Kraepelin, Bleuler (page 83) and many others have mentioned the occurrence of local disease as a probable factor in some cases of hallucination.

In three of the boys the Wassermann reaction of the blood was negative. In the case of Charles there is no record of this test having been made.

#### SIGNIFICANCE OF PRESENT DATA FOR THE PROBLEM OF PROJECTION.

The data here presented have some bearing on the general problem of projection. The usual definition of projection refers to the casting out of unacceptable desires and thoughts, which, in the case of hallucinations, return in the form of perceptions mistakenly ascribed to external sources. This definition is a little too narrow in that it makes no allowance for those cases in which the patient localizes the "voices" somewhere in his own body. Bleuler bore in mind this type of case in his discussion of projection. On page 90 he says:

"Many hallucinations are projected outward as though they were true perceptions and cannot subjectively be differentiated from these. A special position is occupied by the hallucinations of organ sensation: in the latter instances *the body is that which one ordinarily designates as the outer world*. One can usually easily differentiate them from the abnormal sensations of other diseases, since they are parallel in every respect to hallucinations of the other type. They are not looked upon (by the patient) as sensations indicative of some bodily abnormality; thus, the hallucinating patient does not speak of a burning or stabbing pain, but says he

is being burned or stabbed . . . . (In respect to auditory hallucinations) patients in general differentiate between two groups: those voices which come from without, like natural sounds; and those *projected into their own bodies*, which have almost no sensory component and are most frequently designated as *inner voices*." (Italics mine.)

My four cases clearly belong to the latter group, in which the "voices" are recognized as arising somewhere within the person. Thus, Samuel said, "My mind tells me. . . ." Harry said, "It sounds like it's coming from my mind." Charles emphasized, "It's like a little teeny voice *inside*." Joseph spoke of "listening to what's in my head."

Referring to the patients who speak of being burned or stabbed when in reality they merely have a burning or stabbing pain, Bleuler says: "In this way at least the cause is projected outward." In my cases, on the other hand, not only are the "voices" recognized as existing within the patient, but there is no disposition to ascribe their origin to external agencies.

It seems to be generally assumed that an impulse or desire is projected when it is too strong to be repressed. One frequently hears such examples as that of the woman who, unable to "repress" her unsatisfied sex desire, hears voices branding her a prostitute. Yet one may well ask, when unsatisfied sex desire is so strong, why does it not simply assert itself in the ordinary way in disregard of ethical scruples? The data presented by the four boys would suggest that at least sometimes an impulse may be projected, not when it is overwhelmingly strong, but rather when it is relatively so weak as to be pretty evenly balanced by opposing ethical forces. Let us take the example of Harry, who is wondering whether to skip a session at Hebrew school. Aside from the more immediate problem of the inconvenience of attending Hebrew school, there is a struggle of deeper forces. On the one hand, the desire to reject the authority of the father and to discard his racial traditions expresses itself in the feeling "I don't want to go to Hebrew school." On the other hand, the socially accepted pattern is to follow in the footsteps of one's father, so that there is a counter-feeling "I will go." If the former feeling strongly preponderated, Harry would skip Hebrew school without further ado. If the latter preponderated, he would go obediently. In neither instance

would there be any projection. What actually happens (if my assumption is correct) is this: the opposing forces are evenly balanced, each being successfully countered by the other. Each strives to assert itself with greater and greater emphasis, until finally one of them impresses itself on the patient as an audible "Don't go to Hebrew." It may be that this "perceptualization" arises from the inability of the infantile psyche adequately to differentiate perception and abstract representation (this point is discussed more fully in the following section); perhaps, too, some instability of the hearing apparatus may facilitate the process. The opposing force promptly grasps the same opportunity to "say," "*Do* go to Hebrew." It is probably no mere accident that, as Bleuler has pointed out among adults and as my own cases show, there is frequently a pairing of opposing, contradictory voices.

PROGNOSTIC SIGNIFICANCE OF HALLUCINATIONS IN  
"NON-PSYCHOTIC" CHILDREN. RELATION TO  
EIDETIC PHENOMENA.

One naturally wonders whether the existence of hallucinations in a "non-psychotic" child enables one to predict his future. In the absence of adequate data, it seems probable that the hallucinations in themselves are of relatively little importance. More important would seem to be a complete survey of the assets and liabilities of the child and his environment. How he gets along at home and school, etc., seems of greater significance than whether or not he hears "voices."

The recent provocative work on eidetic imagery tends definitely to minimize any ominous significance that one might have thought of attaching to infantile hallucinations. (See the recent summary of eidetic phenomena by Wertham.) Eidetic images (E. I.) are differentiated from ordinary perception or after-images (A. I.) and representation or memory images (M. I.). In A. I. the image is seen only immediately after the object has been gazed upon. In E. I. the image may be seen long after the object has been gazed upon, and is capable of being "produced voluntarily and by thought associations" (Wertham). In M. I. the image is imagined but not actually seen. According to a number of investigators, the majority of normal children are capable of eidetic imagery, losing this power as they become adults. Wertham cites E. R. Jaensch's theory that



in childhood "there is an undifferentiated stage in which representation and perception are practically unified to become two different phenomena only in later life." If this theory is correct and is applicable also to auditory phenomena, one would not be surprised to find that a great many healthy children "hear" their own thoughts, and that in childhood the phenomenon "I heard" is very often equivalent in significance to the adult's "I thought."

If it be true that in childhood there is as yet no adequate differentiation of perception and representation, then we would expect to find in hallucinating children no uncertainty as to whether their hallucinatory experiences consisted of thought-echoes rather than of true sounds. This is indeed what we find in my four cases. None of my boys made any reference to the possibility that it was his thoughts that he "heard." There was no confusion between "voice" and thought; in each case the hallucinatory perceptions stood out clearly and were capable of exact description by the patient.

On the other hand, among adults the case is different. Adults are already aware of a distinction between perception and representation. Accordingly, when adults hallucinate, we would expect to find, at least in some instances, a feeling of uncertainty as to whether the hallucinatory experience was a real sound or only a "thought." This is precisely what we do find. Thus, Bleuler, calling attention to the relationship between representation and hallucination among (adult) schizophrenics, says (page 90):

"There is every gradation from normal representations (*Vorstellungen*) to hallucinations with perfect sensory clearness. . . . Thus even intelligent patients are sometimes unable to say whether they actually *heard* the voices or whether they must have only *thought* them. . . . Sometimes the hallucinations are spoken of as 'loud thoughts,' 'soundless voices.' . . . Sometimes it seems to the patients 'as though they heard.'"

Campbell emphasized the same point, saying: "The differentiation between voice and thought may not be very clear, and in the formulation of the experience the patient may oscillate between having heard a voice and having had a thought."

An interesting instance of the differentiation in later life (beyond the period of childhood) between perception and representation, and of the confusion sometimes resulting between these

two faculties was observed in a non-schizophrenic boy of 14 who described a vivid recurring fantasy which comes to him when he stands leaning over the railing of a certain railroad bridge near his home. In this fantasy two express trains are heading for one another on the same track. Travelling at a rapid rate they engage in a terrific head-on collision. So vivid is the fantasy that "you expect to hear a bang." Indeed, said the boy, sometimes he *does* hear a bang. A moment later he qualified this statement by saying, "I don't hear it, but you *think* it goes bang."

It is interesting to note rudimentary identifications of thought and perception in normal life. Thus a person will say, "*Something tells me* I won't enjoy the play this evening," instead of "I *think*. . . ." Analogously in the visual sphere, we say, "It seems to me" instead of "I am of the opinion that." When someone explains something to us lucidly, we say "I see." We "see through" a person's hypocrisy or trickery. In the gustatory sphere, when something shocks our sense of the proprieties, it is "in bad taste." In the olfactory sphere, when we suspect some hidden disadvantage in a proposition presented to us, we "smell a rat."

#### TREATMENT.

Although this study is concerned with the description and interpretation of auditory hallucinations in children, a word about treatment may be permitted. It is obvious that in all cases of mal-adjusted children attention must be given to the "whole child." The four boys in this series were under the care of social service agencies, and the usual methods were employed to add to their sense of security and to counteract such harmful influences as were apparent. In two cases (Harry and Charles) removal from the home was, as far as one could see, notably beneficial. In the case of Samuel a successful placement was much more difficult to achieve. It is probably more than a coincidence that the two boys who were successfully placed were precisely those who seemed to have the best-balanced personalities of the group.

#### SUMMARY.

1. Four cases are presented of boys who had true auditory hallucinations. The boys were "non-psychotic," in the sense that they showed no acute psychotic disturbances, differing in this respect

from the vast majority of the cases already recorded—cases which concern children who develop unmistakably psychotic states with hallucinations, usually at puberty. Altogether 24 episodes were reported by these boys. The episodes are recorded in detail, attention being given to setting, content, etc.

2. Two of the boys showed what probably are early symptoms of a schizophrenic reaction, although at the time of this study the evidence was not conclusive. The other two boys, while maladjusted, showed nothing suggestive of schizophrenia or any other psychosis. All four boys were below the average in intelligence, two of them conspicuously so.

3. The hallucinatory episodes are studied with regard to the quality of the hallucinatory perception, the localization, the presence of accessory sensations, the content, and the apparent "functions" that are involved.

4. The hallucinations seem to have participated in the fulfillment of the following functions: (a) Defense. (b) Enhancement of self-esteem. (c) Satisfaction of instinctive cravings and of a desire for pleasure. (d) Repression of unwelcome instinctive cravings. (e) Self-punishment, in expiation of a sense of guilt.

It is emphasized that while certain functions are fulfilled, these probably constitute only one link in the chain of factors which really *causes* the hallucinations to occur.

5. In one case there is evidence of mixed deafness in one ear. In another case the evidence is suggestive of the possibility of an organic auditory disturbance.

6. The significance of the findings for the general problem of projection, and their relationship to recent work on eidetics are discussed.

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## THE DEMENTIA PRECOX CHILD.

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The question of the existence of psychoses in childhood is one which has been passed over lightly by the average psychiatrist. Feeble-mindedness, progressive paralysis and an occasional juvenile paresis he is willing to admit, but about anything else he is apt to be a bit skeptical. A few cases which have all the ear-marks of actual psychoses have been reported from time to time, though not often has the writer been bold enough to label them dementia precox. Until recently the psychiatrist has had little opportunity to observe children, and lacked a technique when he did have opportunity. The child guidance clinics have begun to remedy this, and are slowly accumulating a body of knowledge which is bound to change many of our ideas about children; for after all it is not so much the intensive study of a few cases that gives us our knowledge of children or adults, but experience with a great many people, acquaintance with their developmental histories, and the opportunity to follow their progress over a period of years. As more and better psychological methods come into vogue, we are able to differentiate types of personalities and to discover the meaning of traits which have hitherto been obscure. And one of these types it seems to me, exists in sufficient numbers and is sufficiently well known to make it worth while to raise the question if we do not have here actual cases of precox existing from birth or from an early age, showing certain characteristics and passing through a certain course of development.

Kraepelin, as is well known, considered that a certain proportion of precox cases showed mental peculiarities in childhood, and that about 7 per cent of his dementia simplex cases had always been "weak minded." He was working before the days of mental measurement, and the criteria of intelligence were such things as school progress and the opinion of teachers and associates. Unfortunately, the psychiatrist has been inclined to neglect any careful study of the intelligence of his patients, and to estimate it in exactly

the same way as was done 30 years ago. On the other hand, the psychologist, too often ignorant of psychiatry, has been inclined to view the child from the standpoint of intelligence alone, and to account for his peculiarities in terms of mental age or I. Q.'s. It is only when one brings to bear all the resources of both psychiatry and psychology that we begin to have some understanding of the individual, child or adult.

The type of child which gives the title to this paper is well known to every primary teacher of experience and to every child guidance clinic. He is a behavior problem, incorrigible in the literal sense of the word, perhaps engaging in cruel and senseless conduct, showing no regard for punishment and incapable of bringing reason to bear upon his problems. He may be weak-willed, easily led, lacking in energy and appearing lazy; or he may be stubborn, ugly-tempered, and solitary. Indeed he seldom, if ever, makes normal social contacts; he is the "queer" and "different" child in the family, and his mates are apt to fear or deride him. Reality is to him not something to be adapted to, but to be avoided or run away from, and so we find him a truant from school and sliding out of responsibilities at home, for no good reason. When carefully studied one is impressed by the inability to really contact him, unlike the psychopathic child, who gets up the semblance of rapport at least. He lacks the low cunning of the psychopath, and instead of impressing his teachers as capable if he would only apply himself, as the psychopath usually does, he impresses them as dull or defective. He learns slowly, and sometimes appears incapable of learning at all. However, when psychometric tests are applied he is not noticeably behind. This is the type of child who in clinics after the Vineland tradition is diagnosed as "potentially feeble-minded." Vineland as well as other institutions of the training school type have observed such children, often impossible to care for in the community, settling into the institution régime, and showing more or less rapid mental deterioration, until a level was reached well below the border of normality, so that in adult life they do indeed appear to be mental defectives. But surely the term "potential feeble-minded" is a misnomer. By definition feeble-mindedness exists from birth or from an early age, and we distinguish it thus from the mental enfeeblement which may follow upon a mental



or physical illness. An individual who in his childhood showed little or no degree of mental defect as measured by standardized tests can scarcely be called feeble-minded in the strict sense of the term.

The child guidance clinics and research centers differentiate this child from the mental defective on one hand and from the psychopath on the other, and are apt to consider him a constitutional inferior; if his behavior is bizarre enough he may even be diagnosed psychotic or at least pre-psychotic. Since in early childhood his intelligence appears to be developing normally much work is apt to be done with him, and his inability to learn ascribed to special disabilities or emotional conflicts and indeed he sometimes responds to such intensive treatment for a while at least. As he grows older it is evident that he is dropping back into the "dull normal" group, and his difficulties in adaptation become more pronounced. Disaster of some sort usually ensues; he becomes a petty criminal, a vagrant or hobo, or he makes a grand gesture and joins the army or navy, where the discipline soon breaks him completely and he is hospitalized. The girl becomes delinquent or so difficult that her family seeks advice and she too may find her way to the hospital, or to an institution for the feeble-minded.

In the last 10 years, working with patients in St. Elizabeths Hospital, the writer has been struck again and again by histories similar to the above, sometimes in cases with frank psychoses, and again in those who appear more defective than psychotic. Drawing a majority of our male patients from the naval and military branches of the government, one has a chance to observe many young men who might not otherwise have come to the attention of the psychiatrist. They may have had an acute episode in the service, or have shown little else than dullness and stupidity. Almost invariably they are considered to be of poor intelligence, and are often diagnosed mental defectives, with or without a psychosis superimposed. Careful psychological examination, however, tells a different story. Either these patients are still capable of rating considerably above the border-line of mental defect, or it is quite evident that they were formerly able to do so. Their dullness and stupidity, their poor judgment, their foolish or delinquent behavior, their inability to progress in school, are not due to any native lack in intelligence itself, but to the precox process, which has been active for a very long time, even from childhood, and which results finally

in permanent impairment of intellectual functions; indeed, are we not justified in saying intellectual deterioration, since these patients remain on a lowered intellectual level for the rest of their lives, without the temporary improvements or the flare-ups of interest and activity that many old precoxes show, even after years of hospital residence.

The following is typical of many cases:

Franz B., 23 years old, was transferred to St. Elizabeths from a naval base, where he had been sent after only a few weeks' service, during which his mental unfitness became apparent. He appeared dull and unable to learn the naval routine, did not mingle with the other men, lay in his bunk and read while off duty, was suspected of being a chronic masturbator. He finally began to complain that the other men were hazing him, and that they talked so loudly about him that he could not sleep at night. When questioned he could give no clear account of his difficulties and insisted upon leaving the navy, saying that he had been induced to join under false pretenses. He was confined in the guard-house, where he sang, shouted, and talked of God sending angels to punish his tormentors. By the time he reached St. Elizabeths he had quieted down and apparently had forgotten his hallucinatory experiences, but gave a vague account of his "mistreatment" in the navy. The transfer diagnosis had been "psychosis in a mental defective," and the admitting physician, after a lengthy interview, was inclined to agree, but referred him for psychological examination to confirm his impression. The psychologist's report is summarized as follows:

"Though this patient has the appearance and manner of a mental defective, it is evident from careful study of his mental reactions that he is not originally of defective intelligence. He reads well and fluently, writes and spells fairly difficult matter easily, though it takes much persuasion and encouragement to enable him to do so. He comprehends test situations on the 14- and 16-year levels, though his attention slips and his effort fails before he accomplishes enough for credit. All the usual methods of stimulation were tried, but he is unable to actually carry through much beyond the nine-year level. He is aware of his own inability, and says 'I ought to know that,' 'I've heard of that.' Though he scores only nine years seven months on the Stanford Binet scale, he has at one time had considerably more mental ability than is represented by that level."

History was obtained from the four siblings, who are all well-to-do and successful members of society. Our patient was the third child and the second son, and from his earliest childhood was "different" from the others, the "queer" child among the siblings. None of them could get on with him or understand him. The parents spent more time upon him than upon all the other children com-

bined "because they had to." He found it very difficult to learn in school, and was always a truant. Sometimes he would stay away from home two or three days, and return ragged and dirty, and either unable or unwilling to tell where he had been. He did not play with the other children, but played queer little games of his own invention, and resented any effort of the others to join him. He had "a fiendish temper" and "could think up all sorts of devilish things" to harass his family or his school. When he was 10 years old his parents lost their lives in an automobile accident, and thereafter he ran wild, being totally beyond the control of the older brother and sister, who kept the house together for a while. He was sent to the State Industrial School for Boys, where he remained for a year, and had the advantage of tests and intellectual measurements. The superintendent pronounced him "not feeble-minded and not insane," but nevertheless "not normal." When he was 15 the oldest brother sent him to a sanitarium, convinced that there was something wrong with him mentally. From this he was discharged as not a suitable case because of mental deficiency. Whether tests were applied is not known. The boy now began to wander; the family would hear from him in various places requesting money or aid in getting out of a scrape. He then dropped out of sight for two or three years, and they next heard from him when he was hospitalized.

Here we have the mental difficulties existing from a very early age, difficulties of a peculiar sort, which make the child unapproachable, and unable to fit into the ordinary family or school régime. Though he appears mentally defective he lacks the identification marks of the defective, whose intellectual development is retarded from the beginning and lags behind at a fairly predictable rate; if he measures 50 per cent of his chronological age at six the chances are that we will measure approximately the same at 16; moreover, walking and talking are delayed, the latter especially; motor coordination often develops slowly, and all the learned reactions are late in being acquired. But in this other child intellectual development at first keeps pace with his chronological age, but later it begins to slow down; it may cease more or less abruptly or it may gradually deteriorate some time after puberty, and the individual live his life on a lower intellectual plane than his I. Q. would have predicted in his childhood.

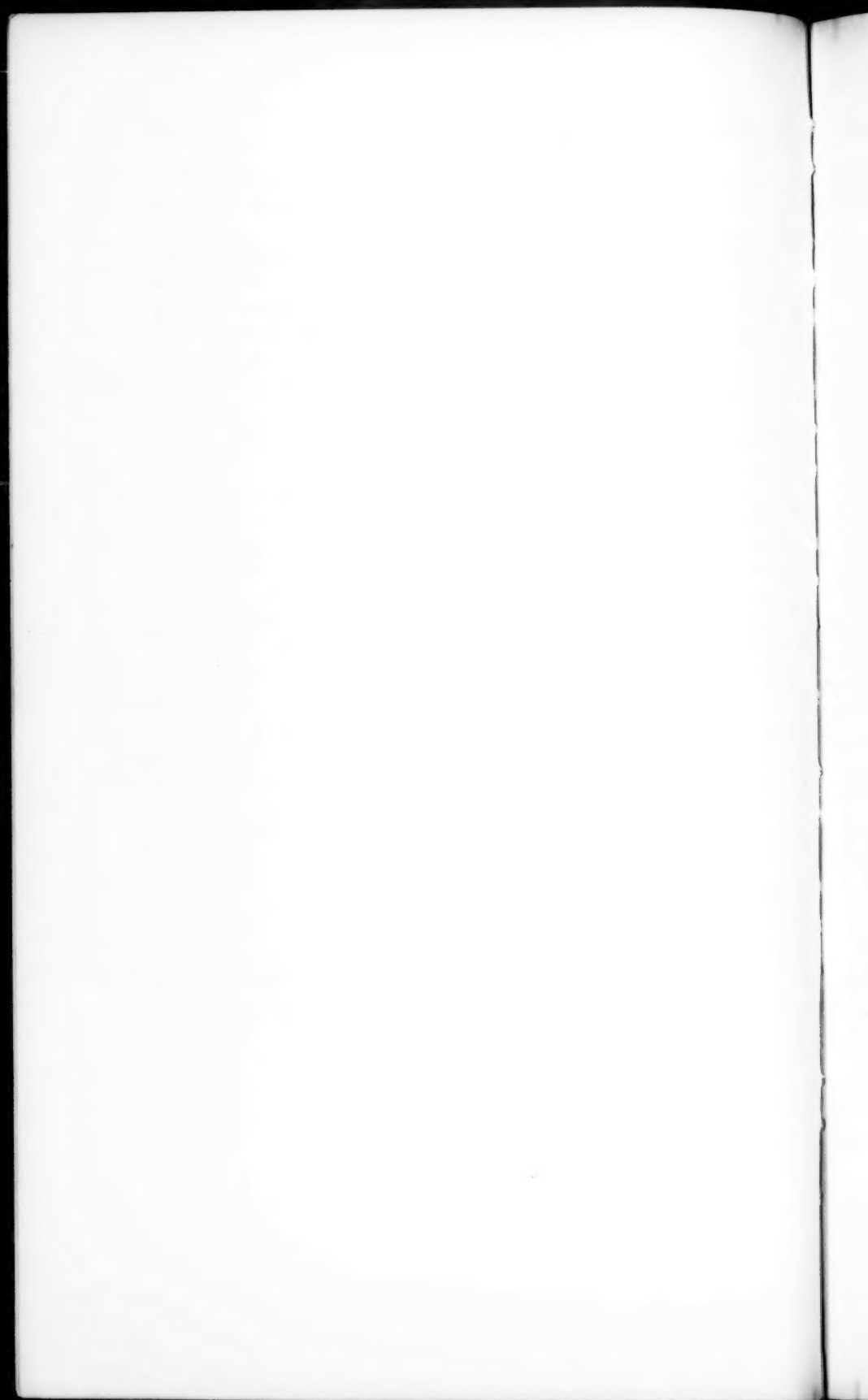
What percentage of cases show cessation of development, or the average age at which deterioration sets in, is unknown. As stated above, the precox child is seldom recognized as psychotic in the clinics while in the institutions he is considered either potentially feeble-minded or socially defective. A survey of a block of 150 admissions from the government services to this hospital within the last year reveals 28 as having histories suspicious of the type, and careful examination discloses 14 of these as almost certainly so. This study will be reported in detail later, but let us add here that the mental age most frequently found is between 11 and 12, a level at which an individual is quite capable of a fairly good social and economic adjustment, if he is able to use to advantage the intelligence he possesses.

While this paper was being prepared a physician asked me to see a 15-year-old boy, who appeared to him as of rather defective intelligence. I found a boy scoring 12 years 9 months, fairly intelligent on the tests, but with a narrow range of information, few interests and little mental content. The mother, an intelligent woman, described him as "always different" (she had four other children), never playing with the others, in childhood amusing himself with bugs and worms and playing queer little games by himself. He is cruel to animals, and to other children, so that for several years the family has never left him alone with his younger brothers and sisters. The brother 18 months his junior has been urged to share his games and companions with him, but refuses because he is so "queer," and the other boys will not associate with him. He has failed to make a school adjustment, learning with difficulty and engaging in behavior which the school finds so intolerable that he has been expelled from two different ones within the last year. He has failed in a work adjustment, his employers refusing to keep him because of his shiftlessness and irresponsibility. He has engaged in various delinquencies, his latest exploit being to take the car of a policeman and stop for gas next door to the police station. What shall we say of diagnosis and prognosis in such a case? This child is not a mental defective, nor a constitutional inferior; he is well developed and nourished with no physical stigmata of inferiority; there are none of the marks of the neurotic child, and though his behavior is psychopathic enough he lacks the cunning and the

self-defensive instincts of the psychopath. One can foresee nothing for him in the future except the mental hospital, if indeed he escapes the prison.

The concept of such a condition raises many questions. If we have here an actual deterioration of intellectual level, ought we not to expect organic changes such as we know in the other deteriorating psychoses? We have learned that the apparent deterioration in the so-called functional psychosis is more properly impairment of mental function, due to the deviation of psychic energy into other than the usual channels; but here deterioration is real, not apparent. Again, how early in childhood can the precox process be recognized, and with what weapons shall we attack it? The question of heredity also enters in; what type of family produces such a child? If we compare these cases with the precocious children who blossom early and then decay—the classical “dementia precox” type—are they from degenerate stock and the latter from the more highly developed, culturally and intellectually? Doubtless also there are many variations of the type, and perhaps some of the social and educational problems that have been so baffling may turn out to be due to the peculiar quality of mind to be found in these child precoxes.

Briefly then, this is my thesis: Intensive study of children and adolescents, with the better psychological and psychiatric tools now in hand, is accumulating evidence to suggest that there are cases in which a deteriorating process, called precox for want of a better term, is at work from early childhood. These cases are often thought to be mental defectives, but they are fairly easily differentiated from actual defectives. Their intelligence at first develops *pari passu* with their chronological age, but later it begins to slow down, and in adulthood they are on a lower level than the I. Q. promised in their childhood, and they remain on this level the rest of their lives. They seem to undergo a deterioration comparable to that which takes place in the organic psychoses. Studies of this type are being carried forward at St. Elizabeths Hospital, and will be reported in detail later.





## A CONTRIBUTION TO THE EARLY DEVELOPMENT OF THE EGO.

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Following Freud's conception of the process of living as representing a constant struggle between the life-instincts and the death-instincts, there has been possible a broader formulation of the various impulses which constitute the dynamics of behavior. The individual's aggressiveness towards his environment has been seen as a product of the fusion between the two classes of instincts, whereby the destructive element has been turned outward and the total striving more or less tamed and socialized according to the degree of erotic impulses contained in the merger. Sadistic tendencies may be viewed as representing an over-abundance of the annihilative impulse in this fusion; whereas masochism, besides being secondary to sadism, may indicate a comparatively pure culture of the death-instincts. Especially is this latter to be seen in the typical acts of self-mutilation so characteristic of the lower levels of amentia.

Indeed, it is when we apply the Freudian theory of instincts to an understanding of morbid manifestations of self-destructiveness that we gain a deeper comprehension of what is taking place. The benign stupors, long sensed as representations of symbolic death, may now be understood as results of a defusion of the instincts. In this separation, the erotic (life) impulses are first withdrawn from contact with the outer world. The patient becomes dull and indifferent to the usual activities of his environment; and it is often noted that affectionate attachments to people are now dropped off. Frequently there is a period of sadistic rebelliousness and violence against the external world, suggesting that the destructive component dominates in whatever relationships there are with objects. It is at this stage that the characteristic "negativism" of the patient indicates his passive hostility towards the outer world. Yet gradually this destructive element is turned more and more against

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the self; there develops a more complete inactivity and listlessness; and soon the individual begins to mention ideas of death.

Very often this feeling that he is going to die is at first accompanied by extreme anxiety; and in this condition we may recognize the struggling of the life-impulses against the rising force of the death-instincts. The tide of self-destructiveness seems to rush on, however, and eventually there is an indifferent acceptance of the fact of death. There follow the deeper phases of stupor wherein catalepsy, tendencies to soil and wet, and the inability to ingest food appear to indicate an increasing loss of control over the bodily functions. Finally, there comes the stage where consciousness itself is more or less totally destroyed, and the perceptive capacity fails. We might truly say that death is very closely approached, for it is only after many months of this apparently complete unconsciousness that the life-impulses again rise to supremacy and the stupor lifts.

In regard to the malignant stupors, however, we must conclude that the life-instincts do not regain sufficient ascendancy. Frequently, during or immediately following a stuporous condition of this type, there appear physical diseases (gangrene, tubercular pneumonia, etc.) in which can be seen at least an important influence from the psychological factor of deterioration and wasting away—significant of the stronger impulsion towards death. Even where this does not occur, the repeated return to states of stupor must indicate that the life-impulses cannot maintain a continued contact with reality. Indeed, whereas symbolic death is followed by rebirth and adjustment to reality in the benign stupors, this process is not completed in the stupors of schizophrenia and manic-depression. Here the phase of rebirth and readjustment is not sufficiently anchored to conditions of the real world but is largely colored by delusions and hallucinations arising out of a phantasy world. We may say, therefore, that in these malignant stupors the defusion of the instincts is further complicated by a weakness in the quality of the life-impulses.

Another manifestation of the turning inward of destructive forces is to be seen in the epileptic attack. Here again there is a withdrawal from the outer world, a giving up of control over many of the bodily functions, and a blotting out of the system *perception-consciousness*. It is true that the state of unconscious-

ness comes about so quickly in the epileptic that we have little chance to observe various stages such as could be seen in the benign stupors. Moreover, the coma in epilepsy is comparatively short-lived and presents few hints as to the possible content of the deeper phases. Nevertheless, unlike the situation in stupors, frequent opportunity is given to observe the process of *return* from the symbolic death. The study and analysis of "mental content" in cases of epilepsy have confirmed the hypothesis that the process of "rebirth" passes through various stages in proportion as the erotic (life) instincts begin to assert their sway, more and more in contact with reality. Observation also suggests that the regression is deeper in (grand mal) epilepsy than in the benign stupors and that, obviously, return to external contacts is much more speedily made. Yet the continued repetition of epileptic seizures leads us to infer that there is an *incomplete* fusion of life-instincts with death-instincts, even in addition to the defusion which is postulated as an immediate cause of the attack.

But in mentioning these four outstanding examples of self-destructiveness (self-mutilation, benign stupors, malignant stupors, and epileptic attacks), we have centered attention upon the dynamic forces, the instincts. What may we learn of the object upon which these forces are discharged? Obviously, the characteristic of all degrees of self-destruction, from masochism to loss of consciousness and death, is that the annihilative impulses are directed against the ego. We should like to know more about how the ego is affected by these assaults, and how it eventually saves itself from total death.

Very often it seems as if not the total ego but various *phases* of the ego are being attacked. A certain (epileptic) patient, whose hypochondriacal suffering concerns the stomach and the clamor of tension arising out of unsatisfied needs in that organ, strikes his stomach savagely and rages bitterly: "What the hell is wrong with this God-damn body of mine!" Both his tone and his manner are as if he were denouncing something external and foreign to himself. Perhaps the stomach now is regarded as a part of the object-world, a hostile part which has given pain and which must be annihilated. Such an impression suggests the inference that the ego has regressed to an inner shell and is attacking the body as part of the environment. We might gather that the ego has shrunk

to a smaller size, perhaps to its very nucleus, and no longer regards the body as a part of itself.

The possibilities of this interpretation are more apparent in connection with cases where self-mutilation is a constant and characteristic activity. A more detailed study of "Ralph" has been given in another place, but we may make a brief summary here as a prelude to new formulations. He is an idiot boy of 16 whose main fixation seems to be at the level of primary narcissism, particularly centered on the constant physical engulfment within intra-uterine-like states. For many months he was accustomed to curl up in a chair, in the doubled-over upsidedown position of the fetus; and, having attained this posture, would remain quiet and contented for hours—quite alone, and with no additional means for entertainment. Similarly, when with his attendant, he sits on the ground in front of the latter's chair, and makes sure that his own shoulders are covered by his big friend's legs which squeeze tightly against the boy's body. In sleeping, he curls into a ball completely enfolded by the blankets; or he wraps a pillow firmly around his head—in any case, being almost entirely shut away from the external world. Whatever contacts he has with the environment, there must be the snug pressure of his attendant's arms around him or holding him securely. Under such circumstances he will walk, ride a bicycle, play on the floor, eat his meals, etc.—but not otherwise.

Any interference with the above program or any introduction of a new attendant brings a raging protest. He cries loudly in a harsh, rasping tone; tears flood his eyes and stream down his face. The impression is positively one of anger and violent rebellion, rather than of passive sadness. Yet never, under these circumstances, does he strike out at any object responsible for his discontent. Instead he swings his fist viciously against his ear, repeating the motion again and again. The ear is cruelly lacerated and bruised; yet he would continue its punishment indefinitely. Both ears are involved and both fists carry out the destructiveness, as if he were bent on rhythmically battering until annihilation was accomplished. If outside interference comes to defend his ears, the boy often uses his chin as a substitute. When his hands cannot strike at it, he regularly jolts his chin against a projecting shoulder. Occasionally

he scratches and digs at his legs, but this is a minor activity. The principal object of his attack is the ears, and, to a lesser extent, the chin.

When the ears are covered tightly by a football helmet or wooden protectors, the self-destructiveness ceases, or, occasionally, is at least greatly reduced. The important factor, however, is not that the ears are made less accessible; the boy often strikes them even when they are covered. The decisive point, rather, is that the ears be bound tightly; or, if his hands are tied, that they be fastened securely and firmly. Under such circumstances, he rarely attempts to hit himself at all—even if his chin is obviously available as a point of attack. Indeed, the tying, binding, and covering of these various parts of himself seem to be, in themselves, a source of gratification—dependent on the degree of tightness and pressure they bring to him.

Ordinarily, our observations would lead us to infer that Ralph seeks to withdraw from contacts with the external environment and to wrap himself more tightly about himself. From the womb-like shell of his aloofness, he holds a lasting hostility against an outer world which interferes with his self-engulfment. He cannot maintain a fusion of the destructive impulses with the erotic, however; and therefore is unable to sustain an aggressiveness in grasping, mastering, or adapting to reality in any socialized way. Indeed, his destructiveness is not turned towards the object-world in any degree, but remains directed upon the ego itself—towards its own annihilation. In other words, we might say that he is doing to himself what he would like to do to the external world, if his ego were only strong enough to maintain such an attack. As to the particular phase of the ego which he does attack, our inference would be that he strives to destroy consciousness (by jolts to the ears and chin), to blot out the perceptive system which has brought him awareness of pain. The various forms of tying, binding, and squeezing which tend to stop the self-destruction are gratifications of his need for engulfment, and hence when they are applied there is no longer a requirement to destroy.

Yet, if this interpretation is accepted, it implies that the very nucleus of the ego, the system *perception-consciousness*, is the object of the destructive attack. Since the violence itself is consciously carried out (his fists are the aggressors), we should have

to say that one part of the ego directs the death-impulses upon another part, upon the nucleus. This is perfectly conceivable, for it apparently is the mechanism of suicide; but it suggests that death would come to the ego-nucleus if the process were allowed to reach its full extent. Actually, however, Ralph's self-mutilation has necessarily been checked by his attendants long before consciousness has been destroyed. We well may wonder what the outcome would really be if external factors did not interfere.

Our thoughts turn again to the stupors and the coma of epileptic attacks, where apparently the destruction of consciousness is not checked by outside influences. We have yet to explain the fact that in these instances death does not actually take place. Obviously, the tendency in a certain direction does not necessarily imply the attainment of the goal; but we should like to know in regard to epilepsy, for example, what forces are opposed to the death-instincts in such cataclysmic attempts to wipe out the very nucleus of the ego. If the life-instincts eventually arise to protect the ego and to place a barrier against the full attainment of death, how is this "rescue" brought about?

Freud has suggested that, in the obsessional neuroses, what guarantees the safety of the ego against its own destruction is the fact that the object has been retained. We wonder if this is a universal mechanism by means of which the ego protects itself from the death-instincts; that is, wherever it can find or maintain an object for the destructive impulses, it saves itself from death. Speculation suggests that, in the epileptic attack and various states of coma, the death-instincts are first directed against the ego; whereupon it immediately draws upon the energy of the life-instincts and floods itself with the narcissistic libido of self-preservation. Possibly this step may be sufficient, but we assume with Freud that such a usurpation of the object-cathexes of Eros (life-instincts) brings a further defusion of instincts and leaves the ego again threatened by an almost pure culture of the death-instincts.

At this point, still speculating, we may visualize a second process of self-defense. The ego shrinks within narrower confines and is thus able to free libido for a fusion with the death-instincts by means of which the latter are redirected towards an object. But since the ego has regressed to an earlier stage of organization, the object upon which the destructiveness is discharged is something



which recently was a part of the ego but has now been withdrawn from. In other words, the ego-nucleus saves itself by casting off its later acquisitions, and by turning the violence of the death-instincts away from itself and upon these cast-offs, viewed as objects. The physical body, then, here regarded as an outer envelope and something external to the ego-nucleus, receives the destructive impulses in the convulsions of epilepsy. In addition, as with the comas also, consciousness and a phase of the function of perception are destroyed—not as parts of the ego, but as outer objects, from the point of view of the central core of the ego.

By this capacity for “drawing in upon itself” and finding a substitute-object for the death-instincts which cannot gain discharge in the real world, the ego may not only save itself in its inner being but it also provides a discharge of tension. Once the release has been accomplished there is seemingly a rebirth and a new progress of development in the “automatic stages” of the attack. We might say that the ego is again slowly taking to itself the parts and functions which were recently sacrificed; the ego-nucleus again is fused with its encircling layers and is once more ready, as a unit, to face the real outer world.

But this formulation for the dynamics of epileptic attacks and other forms of self-destruction is apparently contradicted at two points by Freud's theory of the ego. His contention that the ego is first and foremost a bodily ego, and his statement that the only nucleus of the ego is the system *perception-consciousness*—both tend to invalidate the above speculations. Obviously, the ego could not regress below that of which it primarily consists; nor could it regard its nucleus as an external object. We must, therefore, either give up our attempted explanation, or offer a modified conception of the ego and its development. Without seeking to prove or to disprove, we should like to take the latter course and see what sort of a formulation results. In what follows, for the sake of brevity and clearness, we shall state as fact that which obviously is speculative and tentative.

In the beginning the individual consists, psychically, not of an organized unit in any practical sense but of a scattered mass of impulses and tendencies within the *id*. These are the inherited forces, drawn from the experiences of other egos in the racial part and now concentrated in new form. The new life may be expressed,

not as "I wish, I strive" but as "it urges, it impels." These instinct-excitations are at first automatically discharged. There is no sense of "I," but a complete yet scattered oneness with all, an "oceanic" condition, free from persistent stimuli. In the *id*, however, there are not only instincts but also diversified, unorganized fragments of ego-tendencies and ego-dispositions from the past. The death-instincts tend further to scatter and destroy these wraith-like units of patterns. The quick discharging of tensions and the avoidance of increased stimuli preserve the oceanic "lack of self" and impel towards death. But the life-instincts, from their very nature, tend to unify the fragments of dispersed ego-material. If the process of living is to continue (that is, if the individual is to survive) the life-instincts must be stronger than the tendency towards death. The scattered wraiths of ego-patterns are bound into a feeble, hazy union which becomes the nucleus of the individual ego.

But this "loose core" of ego is made tighter and the sense of an individual "I" is born out of further activity of the life-instincts. By constantly introducing new excitations, they swell the total of libido-tension within the organism—in opposition to the death-instincts, whose function would be served if all tension were removed even beyond the "oceanic" situation, back to lifelessness. The failure immediately to discharge all tension is signalled as "painful" by the perception, an inherited system of awareness which is perhaps organized from the nuclear ego of the unconscious or possibly arises mainly from the physical development of the central nervous system. Thus perception-consciousness could be expressed by "I am aware, I feel," and would then constitute the first subjective awareness of self. It would also represent the primary function of the ego, a passive perceiving of unsatisfied instinct-urges. Yet, while the "I am aware" would be a fundamental part of the ego, the central nucleus would be the subject, "I." Better, we might say, the situation is expressed by: "It awares me," and the "me" is the loosely formed union described above. The more widespread and definite the perceptions become, the more firm and strongly centralized does this core of the ego come to be; just as, later, the more vividly and broadly the ego experiences reality, the stronger it develops in its unity of purpose of mastering or adapting.

In the prenatal stages of life, however, there is little object-cathexis, for the libido is drawn abundantly into the ego where it forms the protective shell of primary narcissism. Yet an "outer world" is distinguished in the appreciation of various parts of the body as forming an envelope around the central ego. This envelope is an attachment but it is "external," to the extent that it signals "pain" or tension to the inner government. The fetal movements, restless stirrings and stretchings, may represent this condition of tension together with the automatic activities towards discharge. Possibly the ego-nucleus from its neutral perception of the methods of discharge passes to a purposive activity in directing the release. Development, perhaps, proceeds from "I am aware" to "I wish, I will it." In so far as the bodily organs are perceived as answering this desire, they are acceptable. The child in the uterus may be slowly incorporating various zones of the body into the ego, to the extent that they are capable of providing gratifications and are seen to be under control of the ego-nucleus. Seemingly, however, this union, too, would be loose and incomplete until after birth, when the body would have a wider, more definite use in self-preservation and in erotic satisfactions.

It occurs to us, now, that we have omitted a step in the development from the passive "I am aware" to the later active directing on the part of the ego. The process of tension-release is at first automatic; but it is taken over by the "I wish," and the discharge which takes place is credited as an accomplishment of the ego. Here, then, is the magic omnipotence so typical of the primary narcissism. In its sense of power and "all-ness," the ego feels that "I will it" is sufficient to bring the desired result. Only when frustration and "pain" have torn down this false omnipotence can the ego advance to real power in directing and controlling the instincts. When libido has been tentatively released from the primary narcissism into an acceptance and union with parts of the body, these new acquisitions of the ego provide the means for an actual purposiveness in discharging tension. Obviously, the most extensive development in this direction must take place after birth.

Nevertheless, this does not necessarily mean that no phase of the process takes place before birth. Logically it seems as if the intrauterine life must contain its ego, its environment, and its conflicts—analogue to life after birth, but all on a miniature scale.

We look back on it now and see such conditions as not having to eat, not having to move, being snug, secure, and relaxed—all as completely pleasurable, a Nirvana. But is not this perfection only such by comparison with the responsibilities and demands of later life? At the time of their original occurrence, circumstances may have seemed just as painful and castrating as in adult situations. We know how false is the grown-up's estimate of childhood as an easy life of carefree bliss. Do we not make a similar error, and for the same reason, when we conclude that the fetus is uniformly happy? Moreover, psychoanalytic understanding has removed the misconception that sexual instincts are manifest only after puberty. Observation and reasoning have yielded the theory of an ever-present urge, from the very beginning of life, which passes through many stages of development before reaching its full and manifest expression. May we not regard the ego, too, as following a gradual evolution even before it is definitely manifest as in life after birth?

Such is the trend of our argument; namely, that the process of enlarging the scope and content of the ego is something which takes place from the very beginning. It is a part of the functioning of the life-instincts in their urge towards the unification of all living matter. From the first fusing together of scattered ego-materials in the *id* for a central core; to the acceptance, within this nucleus, of a *perception-consciousness*; and, finally, to the incorporation into the ego of bodily organs which help to provide pleasure and avoid pain, there is seemingly a universal mechanism. Whatever is pleasurable or serves to answer the inner strivings and needs, is accepted, encompassed, absorbed, and used as part of the self.

Within the womb this takes place to the extent which conditions allow and needs require. Obviously, the acceptance into the ego of hands, legs, arms, etc., can take place only vaguely and tentatively before birth. Consciousness itself is, at the very most, dim and hazy; perception certainly has reached a scant share of its development and use. But possibly intrauterine life is the scene of the incorporation of various *inner organs* and functions into a fusion with the ego-nucleus. The circulatory system, glandular activities of nutrition, possibly the heart and perhaps the stomach, etc., are in some degree accepted as part of the ego. In so far as they carry out smoothly the processes necessary to the individual's survival

or gratification, they are felt as indistinguishable parts of the self. It is probably only when circumstances lead to failure on their part or signals of pain which the ego cannot control that these parts are once more felt as "external."

Following birth, there would seem to be innumerable extensions and absorptions into the ego. Consciousness and the perceptive system are greatly widened; inner organs are further brought into usefulness; and a whole series of outer organs are gradually accepted, brought into some phase of control, and regarded as elements in the total ego-organization. For example, a progressive degree of incorporation into the ego would accompany the stages through which the legs pass, from their first vague uses for auto-erotic discharge to their ultimate worth as a means for locomotion, flight, defense, pleasure, etc. "I walk" becomes a tremendously important function of the ego; "my legs" are accepted as part of "me." Clearly, different parts of the body would receive different evaluations, but we may say the degree of their merging with the ego-nucleus depends upon their capacity for gratifying ego and instinctual needs. (Probably the latter is determined both positively and negatively; that is, an organ is accepted not only because it is useful for discharging tension but also, in part, because its quantity of "pain-signals" is at a minimum.)

One of the earliest and most important regions which are encompassed by the ego-nucleus is the oral zone, which serves both for self-preservation (nutrition) and for erotic gratification. The mouth, we might say, is quickly perceived as necessary to the ego and as capable of control by it, in response to the "I will it." This part of the body, then, is taken as a phase of the ego.

In the nursing stage, we are familiar with the child's impulse to regard mother as part of the ego, for she at first seems to answer many needs and to be under control. The pain which results from temporary frustrations and the perception that mother does not always respond to the "I wish" lead to castration from her and are followed by continued attempts to incorporate her (oral ingestion). Ordinarily the ego comes eventually to accept, to some degree, the castration of this part of itself which comes about when the breast is seen to be beyond its control. From this point, ego-development might be regarded as consisting of two main streams.

One of these we have already noted: the acceptance, fusion, and unification of other parts of the body into a co-ordinated whole.

The second trend may be seen as going beyond the body, in a striving to bring under control of the ego all parts of the outer world which are useful to it or provide the needed erotic gratification. Although reality blocks the actual fulfillment of this to the extent it is instinctively desired, the striving seems normally to continue; and it may be that a compromise is reached by an intellectual ingestion, mastery, and absorption of the outer world. Perhaps it is mental development which compensates the ego for its failure to encompass, actually and physically, the whole of reality. I cannot "have" or "be" the real substance but I can abstractly possess the knowledge of it and the power which then comes under my control!

Reviewing our general formulation, we may note that the conception, "the ego is first and foremost a bodily ego," is still compatible with our point of view. After all, it is the physical body by which one differentiates "ego" from "outer world"; and it is the mental projection of the body which one senses as "ego." Yet our theory is that different parts of the body receive different evaluations and different degrees of acceptance within the ego, according to individual variations in pattern or experience and according to different stages of development. Historically, it seems, "the bodily ego" is an aim of progress rather than an original, basic condition. In a similar fashion we should also agree that the perceptive system is the main inner constituent of the ego; but that theoretically an earlier formation, consisting of a loose union of inherited "ego-materials," provides the ultimate nucleus of the ego.

Further consideration of Ralph's case, then, along these lines suggests that in his withdrawal from the outer world the ego shrinks within itself, drawing more tightly into narrower confines. Perhaps the many forms of engulfment and the sense of pressure from various coverings and tyings represent a closer binding of outer layers to the ego-nucleus. Whenever an attendant regularly indicates a capacity to answer the boy's needs, when he seems responsive to control, Ralph's tendency apparently is to incorporate him within his own ego. The man is fused with the nuclear formation, in a manner analogous to the way parts or functions of the body are accepted into the ego. As part of the ego, therefore, the



attendant strengthens the boy for such contacts with the outer world as he is induced to make (eating meals, walking, riding a bicycle, playing with blocks, etc.).

Yet when Ralph perceives that a part of himself is being taken away, his system interfered with, he is not strong enough to attack the castrating object. His destructiveness is directed against that part of the ego which brought in the painful perception, against consciousness itself. He has then withdrawn more deeply; his ears, his body, the system *perception-consciousness*, are attacked as external objects. A similar regression and destructiveness follow the loss of an accepted attendant. No matter how kind and loving the new nurse may be, the decisive fact is that there has been a castration from part of the ego. Until the new individual is incorporated and fused into the ego-nucleus, the boy goes through a prolonged period of drawing in upon himself and attacking the outer world as represented by his own body and the function of consciousness. In general, we would summarize his ego-reactions as follows: In its tendency to widen its control—from the nucleus, to the perceptive system, to the body, and out to certain needed objects in the external world—if the ego encounters something painful, it tends to retire within itself, disavow its outer layers, and attack them as part of the environment.

If this conception is plausible for the interpretation of classic types of self-mutilation as seen in amentia, it ought to be equally applicable towards an understanding of the deeper self-destruction in benign stupors. We have seen that, in general, observation of such stupors usually groups the phenomena into various stages and our feeling is that these correspond with the changing degree of fusion between life and death-instincts. From the standpoint of the ego, however, we wonder if there are not three main stages through which the stupor-regression passes: (1) a withdrawal from contact with objects outside the body; (2) a withdrawal from various parts of functions of the body; and (3) a withdrawal from the system *perception-consciousness*.

The first would represent that period where the patient is observed to find difficulty in adjusting to his environment. He becomes dissatisfied with life, and loses his desire to project libido into the usual activities. Those contacts with people and interests which previously represented the outermost circle of ego-attach-

ments are now cut away from the ego. In many instances, as the libido is withdrawn there is seemingly a final discharge of destructive impulses against the outer world—such as is seen in sadistic outbursts and, later, the characteristic negativism of the patient. As dullness and listlessness increase, it becomes more and more apparent that the ego has given up not only its power for projecting into reality but also its capacity for absorbing the content and meaning of its surroundings. It has shrunk to the confines of its own body and the cathexes which have to do with it. The ingestion of the outer world is a function which it has given up as no longer a part of its domain.

In this connection it might be well to note that in previous studies of mental retardation we have postulated intelligence as the capacity for ingesting, absorbing, and reprojecting into reality the content of identifications with persons and things. It was found that in the higher levels of amentia the ability to project and use knowledge for objectivated living suffered the main defect. Approaching the lower levels, it appeared that the capacity to absorb the substance of reality-contacts was missing; and in lower grades, the ament was seen to be unable to ingest material widely from his environment. The ingestion of abstract knowledge was in general more difficult than taking in the significance of concrete things. In the stupors, that phase of the regression which is described as "an interference with intellectual processes" seems to follow a course analogous to the grades seen in amentia. First there is seemingly a giving up of the function of "reprojecting and using identifications"; then, a loss of the capacity for "absorbing"; and finally a failure to "take in" the environment at all. Our inference is that the ego first casts off its later acquisitions and developments, but as it draws closer within itself the more primitive functions are lost also. In this first stage of regression, the blending of the destructive impulses with the oral libido for an *abstract* or *symbolic* ingestion of the outer world is no longer a part of the ego's functioning.

As we approach the second period of the stupor-regression (that of withdrawal from the body), we find that *concrete* ingestion is given up by the ego. Food is refused, or the individual is unable to eat it. The use of the mouth as a means for taking in nourishment is at end, or at least is greatly interfered with. Other parts

and functions of the body are also expelled from ego-control or ego-responsibility. Soiling and wetting, earlier used possibly as part of the negativism, now are characterized by complete indifference; anal and urinary processes are no longer of any concern. In the case of women it is usual that menstruation ceases during the stupor—suggesting that this physiological function has been cast out from the ego also. In similar fashion, the many skin and circulatory disorders, the low fever, the frequent loss in weight, and indeed the catalepsy of this stage of the stupor may be interpreted as indications that the ego no longer accepts certain phases of the bodily scheme as parts of itself. It has seemingly shrunk to an inner nucleus, from which it tends to regard the body as merely a dead crust.

It is in the deepest phase of the stupor that even this inner nucleus appears to give way and the ego withdraws to a vague organization around the central "loose core." Perception-consciousness is here destroyed; if not entirely, then at least to a tremendous extent. There are few observable indications of life; to all appearances there is complete unconsciousness bordering on an actual death-like condition. For months and years, the perceptive faculty is seemingly dead; yet death does not take place. The ego, in its last citadel, has apparently saved itself by temporarily sacrificing its outer structures. The death-instincts are gradually discharged in the destruction of these outer layers of ego; the life-instincts, with less to struggle against, now begin to exert a progressive influence. The process of "rebirth" is initiated, and from its loose, inner core the ego again develops and again takes on its higher levels of function and control.

The above summary and interpretation of the ego-reactions in the benign stupors obviously contains much that has not been definitely proved. Yet it is our feeling that this formulation does coincide with much of the evidence gained from observation, and is not conclusively contradicted by any of the data. That the theoretical conception needs much more empirical testing and modification, cannot be doubted. Especially will it be valuable to observe carefully the exact order in which various symptoms appear, to see more certainly by what regressive steps the ego does withdraw. It is difficult, as yet, to separate the phenomena into rigid stages, for it must be recognized that there is no clean-cut division between

one phase of the regression and another. Partial manifestations of the second level of ego-withdrawal may be observable while many of the indications of the first stage are still apparent. There may be complications of alternating rises and falls of the level as the life-instincts continue struggling against the dominance of the death-impulses. Only continued investigation can bring a positive generalization as to what is going on in the various stupor-reactions.

Even more important will be the future observation of the *process of recovery* in the benign stupors. If it can be shown that the ego regresses through certain stages, it should be equally demonstrable that the return is accomplished similarly but in reverse order—even though the upward steps are less obvious and less pronounced. Unfortunately, little has thus far been described of the “rebirth” process in the stupors, and we must consider this phase of ego-reactions in connection with other observations.

The study of mental content in epilepsy has made it possible to summarize the phenomena of the attack into three general stages. First, there is the convulsion itself and the destruction of consciousness in varying degrees (depending on the depth of regression, the type of attack). Following the convulsive period, there is seen to be a stage which might be termed one of crude instinctual satisfactions and automatic acts of impulsive striving. We may assume that this is present even in instances where sleep hides this stage from observation, for an invasion of the patient's thoughts regularly reveals a content of the usual nature. Third, there comes a level where the acts and movements are more purposeful, and the interests begin to take shape with increasingly conscious definiteness—leading finally to complete orientation. This general trend, from loss of consciousness up to a gradual regaining of it, may in itself be taken as an indication that the ego has given up a part of itself and is slowly taking it on again. It is the functioning of the system *perception-consciousness* which has been destroyed and which the ego now reassumes, after the violence of the self-annihilative instincts has been discharged and the life-impulses reassert themselves.

Obviously, the ego's regression has been deeper than in ordinary sleep, and the return is more slowly accomplished. It is for this reason (among others) that the “automatic phase” of the attack

offers more opportunity for securing mental content. But, before this, is there not a period in which certain processes are going on without our being able to discern them in the usual ways? The patient is beyond the scope of our contact with him, yet there may be mental content in the sense of vague, primitive strivings which are below the level of any recognized means of expression. There has been a loss of the use of the eyes, the auditory sense, and the voice, for example. Before the stage of automatism but after the convulsive period, the epileptic usually gives no indication of seeing, is responsive to no sounds, and does not talk. Bodily control is either mainly absent or incomplete and awkward. We infer that the ego has renounced these functions. Is there not now a period, immediately following this, when the ego widens its sovereignty again? It is noted that the patient seems to begin to see objects near him; he gives signs of hearing sounds, of listening to a voice; and he frequently can be induced to reply. Movements of the body are still awkward, he staggers or is unable to maintain more than the cruder forms of co-ordination; yet he gradually seems to assume a fair control. May we not say that, in this period before actual mental content is obtainable, the ego is directing the life-impulses out towards the body, reassuming the function of perception-consciousness and fusing the physical systems into an organization with its central core? The body becomes a part of the ego again and is available for its purposes.

Thus, when the stage of automatic activities begins, there are bodily movements which serve the ego in its task of leading the instinctual forces towards discharge. Both sadistic and erotic impulses are frequently suggested by the gestures and spontaneous acts of this period. Even then, however, the body is seemingly not wholly accepted as part of the ego, for not only are the movements still crude but also the body is apparently used as an *object* in autoerotic pleasures. The interest is self-centered and the expression abstracted, so that it is difficult to draw the patient's attention to the environment. In many instances, some form of intrauterine posture is sought. One boy, for example, made it a practice to curl up in a fireplace or in similar tight, shut-in places; others often assume a ball-like position and bury themselves in dark recesses. We might say again, as with Ralph, that the ego is centered on wrapping its outer layers more tightly around the nucleus; and the whole

phase may first be one of completing the acceptance of the body within the ego. The patient's countenance is described as appearing silly, vacuous, secretly pleased—as if his sole concern is with processes which do not extend beyond the bodily ego.

Soon, however, his attention may be gained and his replies to questions may indicate the level of his emotional interest. Usually the epileptic at this time expresses himself in such terms as "I want to," "I wish," "I'm trying to"; and the body is used more and more, not as an object, but as a tool for satisfying these strivings. Often there are manifested motions which have been described as "groping, as if seeking for some lost object"—and we might infer that the ego is still striving to regain the objects to which it had previously been attached. Now that the body has been slightly fused with the inner core, there could seem to be a stretching out to grasp and include that which is beyond the body.

At this point it has been observed that the patient's speech employs the past tense ("I *was* trying to," etc.)—and possibly this signifies a stronger attachment to the outer world. There is no longer a complete immersion in subjective strivings but a partial contact with the point of view of environment, looking back upon the past and explaining it as something no longer going on. The ego, then, may be said to have reclaimed a part of its identifications with the outer world. That it still seeks to "take in" and attach to itself further comprehension of the object-world, may be hinted at in the look of vague curiosity with which the epileptic now gazes around him. It is as if the ego, groping out from the body, sought to merge within itself more of the attachments which formerly made up its outer layers.

Finally the third stage of the attack brings with it more purposive movements. The inference is that the fusion of perception-consciousness and of the physical body with the central ego has become more firm. The ego now has greater control over its constituents and is more completely ready to approach the outer world. The phase of "return" has been accomplished, and the ego has been restored to its former position.

It is scarcely necessary to repeat that such a formulation of the process of "rebirth" cannot as yet be substantiated by direct evidence. As with the stupors, however, the theory seems com-



patible with many observed phenomena. The question is: Will future observations and further studies tend to reject this interpretation or to support it? Certainly much can be gained from additional consideration of the part played by the ego in such self-destructive regressions as take place in stupors, in epilepsy, and in other states of coma. Will our present conception of the ego suffice to explain these, or is some modification of the Freudian theory necessary? Is it enough to say that the ego is first and foremost a bodily ego, that its only nucleus is the system *perception-consciousness*?

It has been the purpose of this paper to suggest that the central core of the ego lies deeper than either of these; that, while they represent the most important distinguishing-marks of the ego in post-natal life, there is an earlier vague organization during intrauterine existence. Our speculations have led us to postulate that the *id* carries scattered ego-remnants and ego-tendencies from previous generations; and that these come into being with the first stirrings of new life following conception. Impelled by the life-instincts in the *id*, these disjointed ego-materials are viewed as fusing together to form a closer union and to constitute the innermost core of the ego. To this nucleus the ego takes on the function of perception and consciousness—only vaguely during prenatal life, but more completely after birth. Similarly, within the womb, it draws to itself and accepts within its organization such phases of the physical self as are found to be capable of supplying the ego's needs. The fusion of this outer envelope with the central government is pictured as a gradual process, initiated before birth and developing rapidly in extrauterine life. Finally, we infer that it is a characteristic of the ego to use the life-impulses (and probably the death-instincts as well) to extend itself into further conquests and fusions with the outer world—to make the environment a part of itself, just as the body (once viewed as external) was gathered in and merged under the central control. The decisive point is only that the new part-to-be must offer satisfaction or pleasure to the ego and that it be subject to the will of the inner government. The striving towards this unattainable goal would seem to be one of the fundamental driving forces of life itself.

This grasping to envelop and blend into itself all phases of reality—is it not the ego's search for the omnipotence once experi-

enced magically in the "oceanic feeling"? Going back to the very beginning of life, may we not say with Freud: "The development of the ego consists in a departure from the primary narcissism and results in a vigorous attempt to recover it."

Further clinical applications of the therapy based upon the nature and treatment of narcissistic neuroses will be extensively considered in our forthcoming work upon this subject.

## SCOPE OF PSYCHOTHERAPY IN SCHIZOPHRENIA.\*

By PAUL SCHILDER, M. D., PH. D.,

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Schizophrenia can certainly be considered as an organic disease. There are findings in the cerebral cortex which at least suggest an organic basis. Changes in the spinal fluid have been described. The whole course of the disease makes an organic background at least probable. But we must not believe that an organic disease cannot be provoked by psychic causes and cannot be influenced in a psychic way. We can understand any organic disease from a psychological side, especially organic diseases of the central nervous system. We can express an intoxication with drugs by saying that psychic changes of a particular kind are taking place; describing the intoxication in purely psychological terms. The question whether schizophrenia is an organic disease or not has to be separated from the question of whether or not we can understand psychologically what is going on in schizophrenia. Even if we believe in a pure psychogenesis of schizophrenic pictures, we have to reckon with a psychic and a somatic situation. But even if we would suppose that schizophrenic symptoms come in the way of a regression, this regression proceeds to such deep layers that we may even consider this very primitive psychic nucleus of schizophrenia like an organic change.

Psycho-analytic investigations so far have failed to show what the fixating events and facts in schizophrenia are. This means that we do not know any specific events in the early childhood that cause schizophrenia. We are therefore justified when going into the question of psycho-therapeutic changes in schizophrenia, in asking about the general problems concerned in the psychic treatment of organic conditions. When we are so dealing with a stabilized organic defectiveness, we find that we can help the individual to help himself. Let us take the instance of a man who has lost

\* Read at the eighty-seventh annual meeting of The American Psychiatric Association, Toronto, Canada, June 1-5, 1931.

his leg. The recovery is supposed to be a complete one. There are many psychic problems to solve for the person who is crippled. We may help such a person to solve these problems by a kind of psycho-therapy, but besides that we may help the individual to develop by such methods as he may use his prothesis in the right way. Exercising of the parts not involved directly will have a considerable effect. This exercise may express itself in a hypertrophy of parts which are not immediately affected. We know that in *tabes dorsalis* exercises or any compensation therapy can be of considerable help even if the organic process as such is not touched at all. It is partly a better utilization of sensible and sensory impressions which have not been utilized before in the right way. At the same time we influence by this therapy the psychic attitude of the individual. In the instances mentioned so far we have three principles of psychotherapy: (1) psychic adaptation; (2) organic utilization; (3) organic change of substituting organs.

So far we have dealt with an unchangeable organic defectiveness. But there certainly are diseases of a different type. In order to make the situation simpler, we shall take the instance of a person who acquires epilepsy through a head injury. We know that any kind of excitement can provoke an epileptic fit. We can educate the individual to avoid such situations. There may also be some unsolved problems in the system of unconsciousness. By analyzing these conflicts, we can remove this source of excitement and thus one of the sources of the epileptic fit. It is probable that by avoiding further epileptic attacks, or at least diminishing them, the conditions for the healing of a lesion will be improved. We also have to consider that the tendency to epileptic fits probably increases with their repetition. The result of the psycho-therapy under such circumstances would be (4) the psycho-therapy can prevent reactions in connection with the stable organic lesions; (5) psycho-therapy can help by diminishing unfavorable reactions. To use a metaphor, the psycho-therapy takes away energies which are necessary to put pathological brain mechanisms into action. One sees, however, in the case of epilepsy that conditions are still more complicated, in that the vegetative nervous system has an influence in the genesis of the epileptic fit. Psychic influence of the vegetative system is a well established fact. The flow of energy

which we remove by psycho-therapy is certainly in connection with somatic changes which take place.

Psycho-therapy may be used to make special efforts of an organic function possible. In Parkinsonism we see that under psycho-therapy, especially hypnosis, the functions improve considerably, although only for a comparatively short time. The influence here may be either directly on the organs which are affected or it may work through the substituting apparatus. We would therefore have (6) the influence on the organic function in a direct way and (7) the influence on the organic function in an indirect way. One sees that these problems are more complicated when we deal with a function or an excitation instead of a simple loss as discussed above. Thus, in the case of tabes we deal with a problem very similar to the influence of hypnosis on Parkinsonian symptoms.

Every process in the body is dependent upon the blood vessels which in turn can be influenced to some degree through the Psyche. There thus comes at least the possibility that psycho-therapy can cure an organic process, either reparatory or inflammatory. The influence can even go so far as to change the conditions for a bacteriological infection. According to Heilig and Hoff, it is possible to provoke a herpes by suggestion. It is, of course, very difficult to prove that an organic process has been influenced in a psychic way and it is necessary to be very critical in any single case, but we are justified in thinking that there may be a psychic influence on organic processes. (8) Psycho-therapy can create favorable circumstances for the recovery of an organic process. (9) Psycho-therapy can prevent unfavorable influences. (10) Psycho-therapy can have an immediate curative effect on the organic process. (11) Psycho-therapy can influence the immunisatory processes directed against the virus.

The symptoms of carcinoma of the stomach are certainly not an immediate expression of the organic process but are dependent on the personality of the individual, on his reactions to pain and on his present psychic state. There is a great question which symptoms in any disease are obligatory and which symptoms are not. It is only an exaggeration of the same problem when we so often see hysteria in the beginning of multiple sclerosis. Since the organic process does not make symptoms as such but only changes

the reactions, the symptomatology of organic processes will be largely dependent upon the psychic constellation. Acute and chronic changes will therefore bring about different symptomatology according to the various attitudes of the individual. When the individual has an opportunity of adapting himself, the actual symptomatology will probably be much less than in a case where there is a steady progress of organic change. We therefore have to reckon with the fact that (12) the symptomatology of an organic process will largely depend on the psychic attitude of the individual.

In theory, every organic process or every organic defectiveness can be influenced in a psychic way, but it is a matter of experience how much we can do with the limited energies we are able to manipulate by our psycho-therapeutic measures. Some of the emotions of life are stronger than the emotions we can provoke and utilize in psycho-therapeutic measures. There are the great conversions, the miracles done at Lourdes, and, last but not least, the great love. But even so there are limits. The lost leg cannot regenerate and there certainly are organic processes which are beyond the reach of psychic influences.

It is an empirical question how far the psychic influence goes concerning a specific organic change. There is at least the possibility that we could define the process of schizophrenia in a correct psychological way and beyond that to cure the psychological difficulties. But we are far from this final psychological solution of the schizophrenia problem. We do not know the early events which are the basis for the development of schizophrenia. We know that these events should be in very early childhood and should be specific. We could perhaps hope that we shall not reach by our measure the real point of fixation in the psycho-analytic sense but that we could reach secondary points of fixation—events which are in a close connection with the early traumatic scene but not identical with it. An instance will make it clearer. We know that the increase of impulses by strio-pallidar nigra lesion may provoke an increase of destructive tendencies which may lead to sadistic impulses and, when attached to the mouth, to oral sadistic impulses. Anal tendencies may also come out in a similar way. If we can analyze the early childhood events in such cases, we shall not change the increase of impulses immediately but may



change the flow of energy in an indirect way. Finally the increase of impulses may be changed too. It is the great question how often we are able to do that in our schizophrenic cases.

The difficulties to determine the success of our therapeutic measures are considerable. At first we have the difficulties with the diagnosis, especially in the beginning cases. We have to reckon with the fact that schizoid reactions are more common than we suppose. I do not think that these schizoid reactions are identical with the process of schizophrenia. At any rate, they disappear either spontaneously or under rather superficial therapeutic measures. One meets very often, especially in this country, the tendency to identify the so-called schizoidia with schizophrenia, but as far as we know schizoidia is a comparatively stabilized reaction pattern, whereas the reaction patterns in schizophrenia are changing with the progress of something which is lying deeper. The schizoid patient, even if not treated, or preposterously treated, will not deteriorate. If one chooses one's material as one should, in beginning cases, the difficulty in making a diagnosis is still greater. But even if one has assured the diagnosis of schizophrenia, it has to be emphasized that nobody at the present time is able to give an exact prognosis in schizophrenic cases. This pertains to the scientific question whether and how far schizophrenic processes can be changed or not.

But we have to reckon that among the schizophrenic cases there are many in which the process of schizophrenia is mild or does not progress any more. We may deal with a scar and especially the paranoid symptomatology is an effort toward recovery. In those cases, even if we do not change the scar, a new adaptation of the individual will be very often possible. Not only paranoid cases offer such possibilities. It will very often depend on the acuity of the organic processes which one of the possibilities mentioned above will be realized in the therapeutic procedure.

Since we do not believe, as I have mentioned before, in a sharp borderline between organic and psychogenic (the organic is something psychological of a very primitive structure which we cannot understand completely) it is clear that as long as we do not have any reliable somatic therapy, we have to use our psycho-therapeutic procedures. It will depend on the whole structure of the case whether we can try to come near the organic process and whether

we shall use methods which lead as near as possible to the primary psychic conflicts, that is the psycho-analytic method. Whenever the transference situation allows that, we should at least make an attempt of this kind. I do not want to go into the details of the psycho-analytic approach in these cases.

I have emphasized on other occasions that the technique differs in the following way: We have to reckon with a weak ideal—ego system in the schizophrenic. Therefore we have to ask whether what is brought forward can be handled by the super ego. Since the ideal-ego is weak, we have to help the super ego and the ego system. Since the transference is difficult to get, we have to try to help the transference.

But even in cases where a psycho-analytic approach is not possible, we can help the individual to adapt (according to 1, 2 and 3). Occupational therapy, fitting surroundings, etc., will be of the utmost importance here. It will also be possible to remove factors which provoke excitement and therefore pull the individual back strongly from reality (4). It is possible that even those measures will influence the process of the disease (8, 9, 10, 11). But the psychic influence may also change the appearance of the organic change (6, 7, 12).

One sees that psycho-therapy is obligatory in every case of schizophrenia. The general principles involved concerning influencing organic changes have to be applied in a careful way concerning the specific problems of schizophrenia. It is difficult to apply statistical methods to the problem of schizophrenia at the present time. There is no question that one can do very much for the schizophrenic patient but it cannot be decided yet whether we cure the schizophrenia or whether we help him to a better adaptation to the reality and to his life problems.

#### DISCUSSION.

DR. WILLIAM A. WHITE (Washington, D. C.).—Mr. President, Ladies and Gentlemen: I don't think Dr. Schilder's paper ought to go by without some mention. It is in a sense an epoch-making sort of presentation, because Dr. Schilder has crystallized in a very clear way, and in a few moments, a process that is going on in our field of medicine and in all the rest of the fields of the biological sciences, that is wiping out a lot of the old distinctions between mind and body and organic and functional and so on, in order that

what shall happen will be probably that we will get back to more fundamental principles and be able to come forward again to still higher levels than we were ever able to do under the old formulations.

Just as the organism as a whole has now been accepted very thoroughly, so it seems that we now must have to accept the lack of clear-cut differentiation between organic and functional. And so long as we must accept that lack of clear-cut differentiation, we have no right to say that a therapeutic approach from the side of the psyche is incapable of affecting any changes which we ordinarily call organic. We have no right to say that until we have undertaken it, tried it out and found it to fail.

It is the same situation again that we have with reference to heredity. So long as we are willing to project all our difficulties upon heredity, we have a fatalistic philosophy which results in doing nothing. So long as we are willing to call things organic and by that mean that they cannot be changed, we have the fatalistic philosophy which does not admit of any kind of therapy unless it be the enucleating type of therapy of the surgeon.

So here we have really a new note of hope in conditions that are at least malignant, whether we wish to call them organic or not, and certainly there is already sufficient evidence to make us believe that this new note has not been struck in vain and that there is something in this point of view, something stimulating, something worth while, to follow up, and that we have no right to come to any conclusions about it until it has been thoroughly worked out.

DR. SCHILDER (closing).—There is one point which perhaps should be stressed, and that is that with our psychological methods to-day, we are able to understand much more than we did before, and even in the cases of organic destruction, like general paralysis, we see many psychological mechanisms and many psychological functions, and we are not any longer right when we say that that which we cannot understand is organic and that which we can understand is functional. Organic diseases may make understandable symptoms. We can help better when we can understand.

This is not only an important theoretical question but also a practical one. I was very glad when Dr. Hinsie emphasized the possibility of a somatic approach. I have experimented with ether and there is no question that remembrances and attitudes one cannot get in psychotherapy sometimes can be gotten with the help of a narcotic. Maybe we come deeper into the psychological layers when we use the help of somatic methods.

I emphasize the somatic part in the genesis of schizophrenia because I hope that we shall gain most for our patients by approach from the somatic and from the psychic side at the same time.



## Notes and Comment.

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DR. BRUSH AT FOUR SCORE.—On April 23, 1932, Edward N. Brush achieved 80 years of life and work. In extending to him the felicitations of the JOURNAL and the personal congratulations of the editor, I do so not merely because of the attainment of the eighth decennial mile-post, but rather because Dr. Brush is one of those happy individuals for whom life and work are synonymous terms.

A year ago he laid down his editorial pen; but that act was only a gesture. The pen is as familiar to his fingers as ever; his contributions have continued both inside and outside the JOURNAL pages, and he has given unstintingly both in counsel and active assistance in carrying on from month to month the duties of editorship.

Dr. Brush's 80 years have been remarkably fruitful and the living them must have brought to him full measure of satisfaction; but his work is well known to all the readers of the JOURNAL and there is no need to dwell upon it here. In his genius for friendship he has been peculiarly blest, and his closer professional associations have acquired the charm of mutual enduring affection.

In a letter in which he referred to the formal presentation he was soon to make of the portrait of Henry M. Hurd to the Medical and Chirurgical Faculty of Maryland, Dr. Brush in reminiscent vein remarked: "I met Hurd first in Kalamazoo, Michigan, at the Asylum there in 1877; in 1878 I met Osler at the Canadian Medical Association meeting in Hamilton, Ontario; and in 1879 I met Welch when he visited the Utica hospital. In each instance the acquaintance kept up from the first meeting and in each ripened into a lasting friendship. In the year after meeting Welch, Blumer came to Utica (June, 1880), and our long and intimate friendship began. Four notable years in one's life!"

I hope Dr. Brush will forgive this unauthorized quotation from his letter. Of the four distinguished personages he names, two have passed on. When Hurd retired from the editorship of the JOURNAL in 1904, his mantle fell upon Brush's shoulders; and when in 1908

Dr. Brush was honored in commemoration of 30 years of splendid hospital work, Osler cabled from Oxford his congratulations. Two of the four survive, and Welch and Blumer have sent for publication in this issue their messages of good will and affection. This is the tangible evidence of the sort of human relationship which Dr. Brush has cultivated and inspired. It is feelingly expressed in Dr. Blumer's fine letter in which he looks backward through the vista of fifty years.

But Dr. Blumer has a prospect too, as well as retrospect; and in the lines with which he happily closes his letter he voices a sentiment which will find its echo in the hearts of all Dr. Brush's friends both within The American Psychiatric Association and outside its ranks.

C. B. F.

OVERCROWDING RELIEF, NEW YORK STATE SERVICE.—In a survey covering the first half of the present fiscal year of the New York State Department of Mental Hygiene, that is from July 1 to December 31, 1931, Dr. Frederick W. Parsons, the Commissioner, presents some interesting figures. On July 1, 1931, the aggregate overcrowding in the mental hospitals of the state amounted to 25 per cent. It is calculated that this figure will be reduced to 10 per cent by July 1, 1932.

Commissioner Parsons states:

There will be available and ready for service by July 1, 1932, 8000 additional beds, largely accounted for by 1600 at the Creedmoor division of the Brooklyn State Hospital, 600 at Central Islip, 1500 at Rockland and 4000 at Pilgrim. If the patient increase in the final six months does not exceed that of the first half-year the certified capacity of the hospitals on July 1, 1932, will be exceeded by approximately 4500. The overcrowding will be reduced by more than half, but the percentage reduction is from 25 to 9.5.

The building program entered upon by Government of New York State contemplates the entire elimination of congestion in the state hospitals by 1935. What this means can be gathered from the fact that the population increase for the six-month period under review totaled 1280 patients. The present annual increase rate therefore exceeds 2500 patients, and this rate is gradually rising from year to year.

The ambition of New York State to overtake with hospital accommodation the progressive increase in the number of persons



needing institutional care throws into sharp relief the issue of an ultimate economic policy which shall look to the ways and means of providing extramural treatment in a much more extensive scale than has hitherto been possible.

DR. GEORGE M. ROBERTSON.—It is with keen regret that we have to record the death on March 28, 1932, in his 69th year, of Dr. George M. Robertson, who since 1919 had been the physician-superintendent of the Royal Edinburgh Asylum and professor of psychiatry in the University of Edinburgh. Dr. Robertson began his psychiatric career 45 years ago as a member of the staff of Dr. T. S. Clouston at Morningside Asylum, whom he succeeded in the superintendency following Dr. Clouston's retirement in 1910. His honors included the presidency of the Royal Medico-Psychological Association, and in 1926 the Maudsley lectureship. On account of ill-health it had been his intention to retire during the autumn of the present year.

A memorial notice of Dr. Robertson will appear in a later number of the JOURNAL.

## Correspondence.

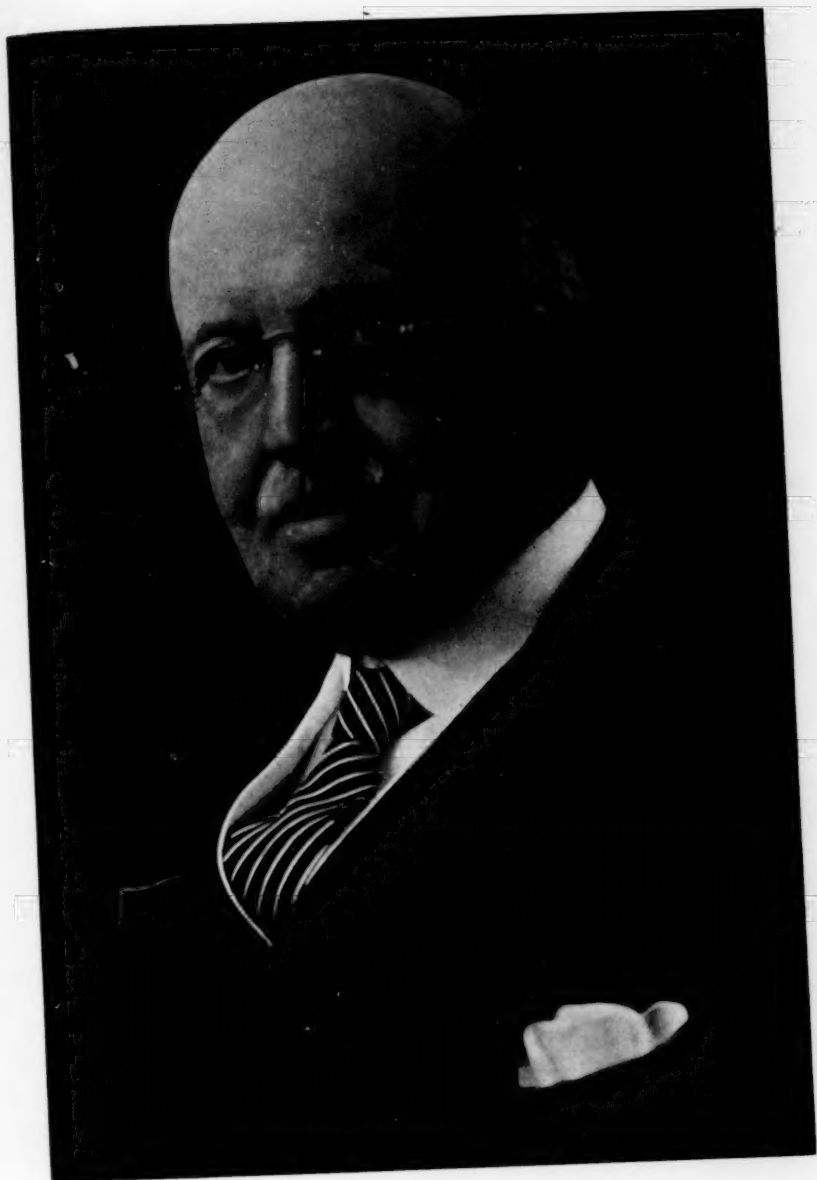
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TO THE EDITOR OF THE AMERICAN JOURNAL OF PSYCHIATRY:

*Dear Doctor Farrar:* In view of the imminence of the 80th birthday anniversary of your predecessor in the editorship of the JOURNAL, I wonder if I may indulge random thoughts and set down random words in commemoration of that happy event. For if Sterne said, "Let me have a companion of my way, were it but to remark how the shadows lengthen as the sun declines," I may claim to have enjoyed something of that quality of companionship, in relation to Dr. Brush, for 52 years. More than that: there has been a bond between us in those five decades and over, with but little interruption, through the JOURNAL, beginning when, as his neophyte, I was initiated into the craft of assistant editorship, as a junior assistant physician at the New York State Lunatic Asylum at Utica, in June, 1880.

To tell the story of that association in detail in entire self-effacement, and without occasional use of the first personal pronoun, were impossible. But a few high spots may serve my present purpose, which is to be as little autobiographical as possible in the accomplishment. And especially on this occasion of rejoicing ought one to be chary of giving one's birthday tribute the semblance of commemoration of another sort which, let us hope, is still remote. Transposing the verbs in a classic line, "I come to praise Cæsar, not to bury him."

Let me begin with a brief description of our first meeting. Bright and early on a Sunday morning, in June, 1880, before the staff was astir, I arrived at Utica from Philadelphia to become fourth assistant physician. It was a time when for me "all the world was young, lad, and all the trees were green." Even to be warned off the grass on my approach by the office-boy, ignorant of my importance, did not wound dignity or daunt high courage. Immediately after breakfast, Dr. Brush, then second assistant (for Dr. J. B. Andrews was still functioning as first, though soon to take com-



Very Sincerely Yours  
Edward M. Bruch



DR. E. N. BRUSH  
AT TWENTY-SIX YEARS OF AGE

mand of the new State Asylum at Buffalo), took me in hand as guide and mentor. Having intellectual curiosity always, and on legitimate occasions even another kind, he asked, as we were polishing our shoes side by side in the dispensary, "How old are you?" My answer was "23," whereupon my genial companion acknowledged himself—with great frankness, I thought—28. Five years, which seemed much then, appear now as a wholly insignificant difference. Indeed, my senior in years has of late shown himself, in his greater activity of body and mind, as rather by that much my junior.

Other data concerning my friend I have gathered partly from memory and partly from other sources. I will confine myself here to the mere essentials of biography.

Born in Glenwood, Erie County, New York, April 23, 1852, Dr. Brush moved a few years later with his family to Buffalo, where he had his schooling. Even at the early age of nine we find the youngster showing a flair for journalism in precocious contributions to a school newspaper. There seems to have been little hesitancy in the choice of career, and in 1871 he entered the office of a distinguished preceptor, Dr. Julius F. Miner, professor of surgery in the University of Buffalo, as a medical student; took his M. D. in 1874, and in May of that year, at the age of 22, opened an office in Buffalo. Under Dr. Miner young Brush had unusual opportunities for surgical practice as an eager and enterprising assistant.

Happily, too, Dr. Miner owned and edited the *Buffalo Medical and Surgical Journal*, having acquired that property after the call of its founder, Austin Flint, to the chair of medicine in the Bellevue Hospital Medical College, New York. Thus was Brush early inducted into the field of medical journalism, becoming in due course editor-in-chief of the Buffalo publication. He also saw service in the practice of medicine at the Buffalo Hospital of the Sisters of Charity under Dr. Rochester, professor of medicine in the medical school, as his clinical assistant for two years. In 1877-79 he was lecturer in electro-therapeutics, and in 1877 he became visiting physician in the children's service of the Sisters' Hospital, Buffalo. Among other distinguished instructors one may not omit mention of Dr. James P. White, gynecologist and obstetrician of great renown in Western New York, whom Brush often assisted in his practice and operations.

It seems to have been largely by accident that, on the invitation of Dr. John P. Gray, and with the lure of pursuing pathological studies at the State Lunatic Asylum (now Utica State Hospital) for a few months, Dr. Brush drifted into psychiatry. For he had planned to go to Boston to study pathology under Dr. Reginald Fitz. An immediate and growing interest in mental diseases held him continuously at Utica for seven years. Of course it is the Utica chapter in Dr. Brush's eventful career with which I am most familiar. For the side-by-side contact, begun in the dispensary as already referred to, meant a growing intimacy and led to life-long friendship. That friendship has its inhibitory implications now in any attempt to say all that an occasion of this kind suggests as subject-matter for record in this place. I need only mention that in those far-away Utica days Brush exhibited the characteristics that have stood him so well in stead in his work of great variety in many places. His mind as a young man was keenly alert, and his training and ability in his profession lent him confidence in all that he did and said. He was abundantly supplied with what moderns call "pep" and, given the provocation, he could easily become righteously peppery. (Some of his vehemence of living may now have passed with the years.) He was a good clinical observer and practitioner, inspiring younger men about him with his own zeal. Upon him, too, as by right of experience, devolved chiefly the duty of operating at Utica as occasion required.

All assistant physicians at the Utica State Hospital in the eighties were ex-officio associate editors of the *JOURNAL*, and of that early group there survive but three, Dr. Brush, Dr. Pilgrim of Central Valley, New York, and myself. To me it was a joy at that time to collaborate in perfect concord with my senior. A glance at the old files reveals how much simpler an affair psychiatry then was before it had evolved from the simple into the complex. It was not necessary in that day that an editor should have seen "the 5 o'clock edition of the medical dictionary" (happy phrase of Dr. Chapin's) before correcting proof.

The death of Dr. Kirkbride in December, 1883, affected the fortunes of Dr. Brush in that the Pennsylvania Hospital Board soon began to angle for his services, though it was not till after the appointment of Dr. Chapin as superintendent in July, 1884, and



in December following, that Dr. Brush accepted appointment as first assistant physician at the Pennsylvania Hospital for the Insane, to be in charge of the Men's Department. There he wrought and tarried for seven fruitful years.

Came then preparation for the opening of the Sheppard Hospital at Towson, Maryland, in the fall of 1890 and the appointment of Dr. Brush as first superintendent in January, 1891. There he labored, and succeeded in his ambition, to establish in Maryland a private, endowed hospital that should be a credit to the state. It was an opportunity to which he rose with all his strength and courage. It may be said perhaps that the best and most effective years of his life were devoted to the Sheppard Hospital. His resignation took effect January, 1920, after a tenure of 29 years, though he remained on duty until April first of that year, when Dr. Chapman took charge.

To dwell on Dr. Brush's great service to psychiatry in his long and faithful editorship of the JOURNAL is unnecessary in this connection. The tale is recent history and on record in the indelible ink of print.

And here this excursive tale of mine may end. Conceived primarily as a message of congratulation it has grown upon my hands to something more. It would please me to feel sure that I had not injected myself into the picture beyond pardon of the charitable.

And maybe, as fitting conclusion to my screed, I shall be allowed to quote, as applicable to our friend and colleague, a stanza from Dr. Oliver Wendell Holmes' poem, "Perpetual Youth"

"At sixty-two life has begun;  
At seventy-three begins once more;  
Fly swifter as thou nears't the sun,  
And brighter shine at eighty-four,  
At ninety-five  
Shoulds't thou arrive,  
Still wait on God and work and thrive."

I am,

Sincerely yours,

G. ALDER BLUMER.

PROVIDENCE, R. I., April 22, 1932.

LA CANADA, CALIF., April 15, 1932.

EDITOR, AMERICAN JOURNAL OF PSYCHIATRY:

*My dear Doctor Farrar:* Looking forward to the approaching eightieth anniversary of Dr. Edward N. Brush on April 23, I make sure you will accord me space in which to express some part of the warm feelings in my heart toward him, not only of admiration but of high regard and appreciation for the true service he for 40 years gave to every member of The American Psychiatric Association by conducting our JOURNAL with absolute and complete success—a task requiring ability and fidelity such as few possess.

To be an octogenarian still in fighting trim is something—but to be alert, rejoicing in benefaction, actually youthful in spirit, genial, humorous as he is, is indeed not given to many. Edward Brush once applied to me the epithet “hardy perennial.” I now ejaculate “*Tu quoque Edwarde!*”

May April the 23d be a happy day through all his years.

With affectionate congratulations, always, Dr. Farrar,

Yours most cordially,

RICHARD DEWEY.

THE JOHNS HOPKINS UNIVERSITY  
WELCH MEDICAL LIBRARY  
1900 EAST MONUMENT STREET  
BALTIMORE, MD.

April 22, 1932.

*My dear Brush:* Two years ago you wrote me a highly prized letter of felicitation upon my eightieth birthday, and now I reciprocate with my heartiest congratulations and best wishes upon your entrance into the circle of octogenarians.

Our acquaintance began fifty-four years ago during your residence in the New York State Insane Hospital in Utica and soon ripened into a friendship which has endured all these years and has remained a source of joy and satisfaction to me up to the present day. I recall with what pleasure I welcomed your coming to Baltimore over forty years ago as medical superintendent of the Sheppard and Enoch Pratt Hospital.

I have rejoiced in the distinguished reputation and the position of leadership in the profession which your eminent services and

valuable contributions in the field of psychiatry have so justly earned for you. Yours has been a strong influence for the highest standards and ideals of our profession both here in Baltimore and Maryland and in the whole country as well.

Above all, those of us who have had the good fortune of personal acquaintance and friendship with you love to recall on this occasion of felicitation those fine qualities of mind and heart and personality and good fellowship which have endeared you to a host of friends and admirers.

May you have many years of continued vigor of mind and body and of happiness!

With all best wishes, sincere congratulations and affectionate regards, I am

Ever faithfully yours,  
WILLIAM H. WELCH.

DR. EDWARD N. BRUSH,  
MT. WASHINGTON,  
BALTIMORE, MD.

May, 1932.

TO THE EDITOR, AMERICAN JOURNAL OF PSYCHIATRY:

*Dear Sir:* It has seemed to me that as an associate of many years I am privileged to pay brief tribute to one to whom I owe much and who has recently passed his eightieth birthday. It was a privilege to offer my congratulations and good wishes on that occasion, together with many other good friends, both lay and medical.

It is pleasant to see a man who has lived four score years alert, vigorous, mentally keen, interested in his profession and in occurrences of the world in general. A few days after the birthday I saw and heard him deliver an address of presentation of a portrait of Dr. Henry Mills Hurd to the Medical and Chirurgical Faculty of Maryland. On this occasion all were struck by the physical and mental vigor of the speaker, and were pleased with the tribute which he paid to his long-time friend, Dr. Hurd, because he so aptly summed up the achievements and character of that well-beloved man.

You were one of his "boys" and began your association with him a few years after I had begun mine. After ten years your

path led you away from him, but mine continued until he gave up his leadership of the Sheppard and Enoch Pratt Hospital, a period of almost 25 years, and still continues though less closely.

I know that we both regard him with affection and like to consider ourselves still his "boys," proud of the interest he takes in us, and glad to go to him for advice, just as we did before Father Time touched us lightly with his kalsomine brush.

I am taking this opportunity, therefore, to register "my sentiments," and to "tell the world" that we love and honor him.

Sincerely,

W. R. DUNTON, JR.

## **Association and Hospital Notes and News.**

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### **THE THOMAS W. SALMON MEMORIAL LECTURES**

The first series of the Thomas W. Salmon Memorial Lectures was given at the New York Academy of Medicine on the evenings of April 8, 15 and 22, 1932. The lecturer was Dr. Adolf Meyer of Baltimore, who was chosen in recognition of his services to American psychiatry and his eminence as a scientist and teacher.

This lectureship was established in honor of the late Dr. Thomas W. Salmon, Professor of Psychiatry in Columbia University and the first Medical Director of The National Committee for Mental Hygiene. Shortly after his death, his friends and associates formed The Thomas W. Salmon Memorial Committee, which raised an endowment fund of \$100,000 as a permanent memorial in his honor for the advancement of psychiatry and mental hygiene; and each year an outstanding worker in these or related fields will be selected to give the Salmon Lectures, which form the main activity of the memorial. The lectures will be given in various cities in different years under the auspices of accredited scientific, medical or educational organizations. The New York Academy of Medicine administers the fund and the lectures.

The Thomas W. Salmon Memorial Lectures are the first of their kind to be established in the history of American medicine and have been called "the Nobel Prize of American Psychiatry." It is the purpose of the lectureship to stimulate and encourage original research and study in mental hygiene and psychiatry and to honor in this way those who are making outstanding contributions to scientific advancement in these fields, in this country and abroad.

The first award went to Dr. Adolf Meyer, Professor of Psychiatry of Johns Hopkins University and Director of the Henry Phipps Psychiatric Clinic in Baltimore. Dr. Meyer is one of the world's outstanding psychiatrists and has distinguished himself as a leader in his field. Over a long period of years he has made significant contributions to the development of the mental sciences, as a clinician, research worker, writer and teacher. He was one of

the earliest to interest himself in mental hygiene, and he gave to the movement the name it bears. From the beginning he has given consistent support to this division of preventive medicine.

Dr. Meyer's subject was "Psychobiology," and in these first Salmon Memorial Lectures he has enunciated his credo and set forth the fundamentals of his psychiatric doctrine as he has developed it through the years. In opening the series Dr. Meyer paid tribute to Dr. Salmon in these words:

There are among us many who worked with Thomas Salmon, in whose honor I am asked to address you. He was an untiring and yet wonderfully placid and poised person, an idealist and at the same time a most practically minded physician. In 1902 ill health had led him from private practice to the investigation of endemic disorders at the Willard State Hospital, and later in the public health service he kept close to problems of welfare of the deep sea fishermen and the insane immigrants, until, in 1915, the National Committee for Mental Hygiene claimed his time and talent, and in 1917, the war, his leadership in the neuropsychiatric service of the army and, finally in 1921, Columbia University for its professorship of psychiatry. In the symposium in his memory, January 10, 1931, Dr. William L. Russell placed as foremost among the interests of our friend "a better understanding and a closer cooperation between psychiatry and other branches of medicine." It was his faith that science was beginning to elevate psychiatry, from being the neglected step-daughter of medicine to a place of honor and greater usefulness in the family of medical specialties.

In his first lecture Dr. Meyer discussed the relations of mental and general medicine, and described the position of psychobiology with reference to medicine and the associated sciences:

Its principal aim is to understand and describe man as we understand and describe any object of natural history—to reach a common-sense formulation of the facts, viewing man as *an organism in action*, as an experiment of nature with specific sets of integration or unit-formation, an organismal entity that functions in harmony with the laws of physics and chemistry and of biology, and yet yields a picture in which we do not have to sacrifice our plain critical common-sense evaluation and our wider knowledge and appreciations of life and its aspirations.

Until recently the average physician viewed the most vitally interesting functioning of man as lying outside his field of training, to be treated as if belonging to another world and thus beyond his ken, or as a segregated district with all its underworld irregularities or denominational phariseism. . . . the study of man formed two strongly divided fields, that of the mind and that of the body—on the one hand the physical and chemical interpretations, on the other the mind, a problem of the mental and spiritual interests belonging to the philosopher, the minister and the



educator, more or less priding themselves on being able to ignore the body. These extremes played havoc with the maintenance of a sound common sense. Vital and meaningful human life as it really is lived was sacrificed on the altars of competitive sciences and world views.

All that had any meaning and significance for the understanding of human life as we all live it, and as it has its most human presentation through the masters of drama and fiction was tabooed as unscientific, unless it could work on strictly elemental introspective and mathematical-statistical formulations such as Weber's and Fechner's laws, and imitations of what figured as scientific method in use outside of the study of man.

But in spite of the tabooings and discouragings and thwartings of many hopes by the so-called "new psychology" of the seventies, eighties and nineties, there were those who were forced by their native sense and by the evidence of our work with the human being to recognize the compelling and objective reality of facts. Taking the courage of common sense we began to speak of human conduct as the functioning of a person, and of behavior as expressing the instinctive and emotional and intellectual resources.

It is important for the physician and for his patients that attention be given not only to the parts but also to the whole person. From the standpoint of psychobiology man's hopes and fears, his convictions and urges, his attitude towards right and wrong and even his religious conceptions and beliefs are as much a property and quality of the person as anything that can be weighed in the scales or measured by the yard.

We study man as part of biology, the science of living things. We see in man a kind of being which was carried far ahead of the other breathing creatures or animals through the liberation of his hands from the job of locomotion, and his humanly most distinctive gain in tongue-function or language, far beyond the largely sensory-motor and pictorial life of the animal to a capacity to live in and with verbalized thought. It is this conception that the student is asked to use in studying himself and his kind. . . .

The setting of the study of man consists of an equal familiarity with the so-called natural sciences and the humanistic sciences. Any attempt to segregate the one or the other set has its revenge. The emphasis with the physician lies on the biological side; but this does not release him from obligations of wider contact.

Dr. Meyer considers it essential not only for the physician, but also for the educator, the clergyman, the lawyer, the sociologist, to cultivate a psychobiological viewpoint, which, as he outlines it in this lecture, shall do ample justice to all of the objective and all of the subjective features of man. He describes an elementary course of training designed for students which takes the form of a biographic statement and detailed personality study and which treats

the facts as experiments of nature to be understood and accounted for and treated in a spirit of objective description, but also with a full sense of opportunity for creative modification. In this way the investigation can do justice to all the facts, whether they be those of physics and chemistry or of the growth and function of special organs or the functioning of the whole person. It thus becomes possible to give the necessary consideration to the parts without losing sight of the unity of the person.

Such a background is essential for the understanding of the meaning of disease and for its treatment in a human and common sense manner.

In his second lecture Dr. Meyer discussed the adjustments necessary in our concepts of pathology if we are to do justice to an organismal psychobiology, and the consequent reduction of psychobiological disorders to terms of genetic-dynamic "experiments of nature"; viewing them not as symptoms of disease entities but as concrete "ergasias" (a term suggested by the speaker to denote all psychobiologically integrated functioning).

The third lecture outlines what, in the light of these conceptions, we are actually doing in therapy, and with what division of labor; and it lays particular emphasis on the great need of a widely acceptable consensus concerning personality disorders for a sound promotion of a psychiatry and mental hygiene based on a full appreciation of the biographic as well as structural-functional organization of man's personality and life function.

Psychobiology deals in its pathology and therapy with the general principles of adequate and inadequate performance, miscarriages of the nature of mistake but still normal ergasia, or of the nature of path-ergasia, with human facts to be resolved into an experiment of nature, emphasizing the contrast of modifiable and frozen components. The therapy emphasizes wherever possible the principle of socialization of the patient and his activities, in contrast to a too specific physician-patient relation and its management; it deals with maladjustments not merely as symptoms but as samples of performance including the disorders to be corrected. It works with the ever present normal part of the individual and group, guiding it so as to bring about digestion of the ill adapted tendencies, the inadequate substitutions and symbolizations.

Dr. Meyer's lectures surveyed an immense field. In necessarily circumscribed form they presented his matured conception of psychiatric theory and practice. It is the purpose of the Memorial Committee to publish them together in book form.

APPLICANTS FOR MEMBERSHIP AND FELLOWSHIP.—The applications of the following physicians for membership or fellowship in The American Psychiatric Association, having been received more than two months before the date set for the annual meeting, although too late for publication in the March issue of the JOURNAL, will be submitted for consideration by the Membership Committee and the Council of the Association at the 1932 meeting in Philadelphia:

#### MEMBERSHIP.

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|---|---|
| Dr. Simeon Carlyle Allen, 311 Commonwealth Avenue, Boston, Mass.                                | Dr. Bernard S. Robbins, Sheppard and Enoch Pratt Hospital, Towson, Md.  |
| Dr. Robert S. Bookhammer, Philadelphia Hospital for Mental Diseases, Byberry, Philadelphia, Pa. | Dr. Lindsay E. Robinson, Greystone Park, N. J.                          |
| Dr. Henry N. Goldstein, 570 Delaware Ave., Buffalo, N. Y.                                       | Dr. Max Rossman, Allentown State Hospital, Allentown, Pa.               |
| Dr. Robert Battaile Hiden, Stockbridge, Mass.   | Dr. Charles G. Stogdill, Dept. of Public Health, Toronto, Ont., Canada. |
| Dr. Harold S. Magee, N. J. State Hospital, Trenton, N. J.                                       | Dr. J. B. Spradley, N. J. State Hospital, Trenton, N. J.                |
| Dr. Thomas D. Noble, Sheppard and Enoch Pratt Hospital, Baltimore, Md.                          | Dr. Dan Taylor, Supt., Western Oklahoma Hospital, Supply, Okla.         |
| Dr. Blake Daniels Prescott, Hartford Retreat, Hartford, Conn.                                   | Dr. Herman M. Turk, Lima State Hospital, Lima, Ohio.                    |
| Dr. Leon Reznikoff, Hudson County Hospital for Mental Diseases, Secaucus, N. Y.                 | Dr. Norman L. Walker, 2 Surrey Place, Toronto, Ont., Canada.            |
|   | Dr. Frank F. Williams, Jr., Patton State Hospital, Patton, Cal.         |

#### FELLOWSHIP.

- |  |  |
|--|--|
| Dr. Harold I. Gosline, Psychiatrist, Dept. of Hospitals, Bellevue Hospital, New York City. | Dr. George C. Stevens, 607 Xenia Ave., Yellow Springs, Ohio. |
| Dr. Edward D. Hoedemaker, 34 and Pine Sts., Philadelphia, Pa.                              | Dr. Charles W. Thierry, Metropolitan Bldg., St. Louis, Mo.   |
|  | Dr. George W. Wilson, 1054 Fisher Bldg., Detroit, Mich.      |

MEMORIALS TO DR. HENRY M. HURD.—Several months ago a committee was formed in Baltimore to arrange for a memorial to be placed in some suitable position in the Johns Hopkins Hospital to the late Henry M. Hurd, its first medical superintendent. It was decided after due deliberation, and upon consultation with Dr. Hurd's daughters, that this memorial should be in the form of a bas-relief portrait in bronze.

Upon further deliberation it was also decided to have a portrait painted to be placed in Osler Hall, the auditorium of the Medical and Chirurgical Faculty of Maryland (the State Medical Society).

Subscriptions for these purposes were sought among the graduates of the Johns Hopkins Medical School and from Dr. Hurd's medical friends and former associates.

On Wednesday evening, April 27, at the final session of the annual meeting of the Medical and Chirurgical Faculty, the portrait was presented to the Faculty in a brief address by Dr. Edward N. Brush, on behalf of the committee.

In the meantime the trustees of the Johns Hopkins Hospital have erected on the hospital grounds, between two new buildings, the Osler Medical, and the Halsted Surgical Clinics, an auditorium to be called the Hurd Memorial Hall. This building, already in use for medical meetings, will be dedicated in October next, at which time the bas-relief, which is finished, will be presented to the hospital.

Dr. Hurd, the organizer and first superintendent of the Eastern Michigan State Hospital at Pontiac, was called to the superintendence of the Johns Hopkins Hospital in 1889, just after its opening, entering upon the duties of the position in August of that year.

When the medical school was opened in 1893, he was made Professor of Psychiatry—becoming Professor Emeritus in 1906. In 1911 he resigned his position in the hospital, but the Board of Trustees, unwilling to be deprived of his counsel, made him secretary of the board, which position he held until his death in 1927.

When this JOURNAL was acquired by the Association Drs. Hurd, Cowles and Dewey were charged with its conduct, Dr. Dewey becoming the active editor.

In 1897, upon Dr. Dewey's resignation, Dr. Hurd became editor, which office he held until 1904, when he resigned, remaining on the editorial board however until 1911, when upon his resignation he was made editor emeritus.

Dr. Hurd was active in the reorganization of this association in 1892 when it changed its name from The Association of Medical Superintendents of American Institutions for the Insane to The American Medico-Psychological Association, and was its first secre-

tary under the new title. In this position, which he held until 1897, when he became vice-president, he contributed very greatly to the success of the organization.

In 1898 he became president.

His work at the Johns Hopkins Hospital brought him an international reputation. Upon hospital organization and management in this country he has made a lasting impress.

## Book Reviews.

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*Psychotherapy. Collected Papers from the State Neuro-Psychiatric Institute in Kharkov.* Edited by PROF. K. I. PLATONOV. (State Press of Ukrania, No. XIV, 1930.)

The activity of the State Neuro-Psychiatric Institute in Kharkov is already known to the readers of this JOURNAL. Since the opening there appeared regularly collections of papers under the leadership of Professor Geymanovitch, the director of the institute. Earlier publications dealt chiefly with the aims and the program of the institute. As time went on results of original investigations appeared and now, about five years after the opening, we have under review a volume of over 300 pages reserved entirely for studies of therapeutic methods and their application in neuro-psychiatry. This phase of the work is under the leadership of Professor Platonov.

In this volume the study of psychotherapy is slowly and methodically unfolded from generalizations to higher specialized features. A general study on suggestions is contributed by K. I. Platonov. It deals chiefly with the spoken word as a therapeutic and physiologic factor embracing various phases of verbal influence on the personality and its several functions such as the metabolic-vegetative processes. Platonov utilizes for his problem the theories of Pavlov and Bechterev, assuming that the psychoneuroses and the "reactive psychoses" develop according to the laws of reflexology and have to be considered as manifestations of a reactive nature without any anatomic pathologic substratum. All such pathologic processes which do develop by way of connecting conditioned reflexes can, according to Platonov, equally be reduced or eliminated with the aid of the same principle, that is, with the help of the corresponding conditioned connecting stimulus. Such a stimulus is the spoken word which through its complexity and richness of content reacts on the organism through the cortex. The spoken word is a natural conditioned connecting stimulus and at the same time also is a substitute for the unconditioned fundamental stimulus and, therefore, reacts as the "realistic stimulus" of Pavlov. In this connection the spoken word has even a physiologic influence on the organism producing various physiochemical reactions. Suggestion is a typical simplified conditioned reflex (Pavlov) and the word-suggestion has, therefore, an exclusive physiologic process. The author believes that laboratory investigations prove the assumption that all functions are directed, hindered, or even transformed under the influence of word-suggestion. This is especially evident in the reactions of the autonomic nervous system. As an example of such reactions the author cites reflex-conditioned sleep or hypnosis as a hyposympa-



thetic reaction. During such states of sleep there is a reduction in the pulse rate, a decrease in the blood pressure and the respiratory rate. The author's study further shows that the degree of the hypnotic state is in direct relation to the verbal suggestion. The latter has also a direct influence on water and carbohydrate metabolism and thus seems to clarify the value of psychotherapy in such diseases as diabetes mellitus and insipidus. Feeling of nausea and hunger is supposed to be influenced by verbal suggestion. The author feels that the influence of the spoken word can be rendered particularly great when it is uttered by a physician who inspires confidence when the patient's cortex is in a particularly receptive state. The psychoneuroses according to Platonov are produced through an emotional reflex-conditioned cortical vegetative mechanism creating false images of organic ailments of internal organs. The author advocates the utilization of the physiologic qualities of the spoken word for therapeutic measures. He pleads for the replacement of the expression psychotherapy, which is an abstract definition, by the word "logotherapy" which has a more concrete meaning. He further discusses the necessity of methodical teaching of psychotherapy and deplores the haphazard way psychotherapy is used by the profession. He believes that Pavlov-Bechterev's theories offer not only a physiologic substratum in the genesis of the psychoneuroses but give also a physiologic rationale for therapy. Make-suggestion, suggestion in hypnosis, persuasion, psychoanalysis and all other forms of psychotherapy have the same basic physiologic processes differing from another only in a qualitative methodologic way. All these methods of therapy are based on the restitution of the dynamically disturbed equilibrium between the two basic processes in the cortex, namely the stimulation and the blocking. Psychotherapy or better, logotherapy according to the author helps the protective adjustment of the organism to the environment with the aid of rearrangement of the manifold physiologic states of the various parts of the mosaic-like cortex, producing an improvement in the psychic activity of the personality. He further divides this form of therapy in the following groups: suggestion (wake-states and hypnosis) and psychoanalysis or psychagogic treatment. The first group he calls the minor type and the latter the major type of scientific psychotherapy. The minor form of psychotherapy is particularly useful in the various branches of practical medicine. The major form is to be used in complicated psychoneuroses.

As a transition from the general to the special form of psychotherapy the work of I. Apter on psychotherapeutic methods and their utilization in various forms of mental disorders is of considerable interest. He reports his results of various psychotherapeutic approaches made in 1250 psychoneurotics. The following forms of therapy were used: wake-suggestion, hypnotic suggestive method, persuasion method of Dubois and Dejerine and the psychoanalytic method of Freud. Combination methods such as psychoanalysis and hypnosis were also used. Best results were obtained in cases of hysteria and in "reactive neuroses" with positive results in 55.2% of cases. In various types of "sexual psychasthenia" and in sexual perversions

there was improvement in 54.8% of the cases. "Psychasthenia neuroses" gave 45% of good results; traumatic and occupational neuroses showed 40% of improvement. Of the various methods hypno-suggestion was used in 67.7% of the cases, wake-suggestion in 11%, persuasion in 5%, psycho-analytic method in 5.3% and combination method in 11% of the cases. The author seems to share Freud's point of view regarding the etiology and structure of most of the psychoneuroses; at the same time, however, he asserts that the development of the individual pathologic symptoms follows the principle of the conditioned or "combination reflexes" of Pavlov and Bechterev. He further believes that the primary pathogenic stimuli are to be found in the social environment. He suggests leaving to the physician's judgment the matter of selection of special methods of treatment. He feels strongly that only collective methods which can be used for large contingents of patients be employed. Among such methods hypnosuggestion is especially useful for collective treatment of psychoneuroses of the reactive type where the pathogenic situation is quite evident and not hidden from the patient. He also advocates the same form of therapy for neuroses with autoerotic or narcomanic tendencies and especially in cases where there is a necessity of a quick elimination of long standing symptoms and where a more fundamental rational method of treatment can be utilized later. The Dubois-Dejerine form of rational psychotherapy is indicated according to Apter in the psychasthenic symptom-complex where the neurosis does not develop on the bases of infantile unconscious pathogenic moments. He suggests the use of the psychoanalytic method in all cases of hysteria, in phobias of both hysterical and psychoneurotic nature, in compulsion neuroses, in psychoneuroses with sexual inversions and in other psychopathological states the origin of which, cannot be readily made clear.

A greater part of the special psychotherapy is taken up with studies of various therapeutic methods in the treatment of such psychopathologic entities as alcoholism and morphinomania and the treatment of the psychoneurological symptomatology which is usually associated with somatic pathology such as tuberculosis. Considerable work has also been done in the treatment of the pathologic manifestations connected with the generative processes like pregnancy (vomiting), and in the control of physiologic processes where pain is always present, as in childbirth. In this respect the special part of the volume is of particular interest. Of scientific interest are the observations made on blood pressure variations during states of hypnosis, the influence of adrenalin on blood pressure in hypnotic states and the influence of experimental sleep (hypnosis) on various psychic functions.

Whatever the claims of Platonov and his co-workers may be, so much can be said that the program of the research in psychotherapy was scientifically and methodically planned and executed. It is the first piece of work the writer knows of where theoretical considerations are documented with clinical material on a large scale and where statistical data are offered—something we sorely missed in all contributions on psychotherapy in the past.

J. NOTKIN.

*Die Juvenile Amaurotische Idiotie. Klinische und Erblchkeitsmedizinische Untersuchungen.* By PROFESSOR TORSTEN SJÖGREN. (*Separat ur Hereditas XIV, Gleerupska Universitets-Bokhandeln, Lund, 1931.*)

Professor Sjögren's monograph on Juvenile Amaurotic Idiocy will be acceptable not only to those engaged in neurology and psychiatry, but to the medical profession as a whole. It is a comprehensive study incorporating detailed genetic and longitudinal histories of 120 cases. The aim of the author is to enumerate his findings so accurately, concisely and clearly that the medical man can readily recognize a sporadic case even if a family history is not available. Previous studies although intensely interesting have been less ambitious due to paucity of cases.

In the introduction it is briefly noted that juvenile amaurotic idiocy may be classified in the simple idiot group due to similar characteristic cell changes in the central nervous system. The remainder of the introduction is devoted to a historical review of the literature. From other authors it is known that Waren Tay was the first to describe amaurotic idiocy (1881), but he referred to infantile amaurotic idiocy. Sjögren points out that Pelizaeus (1885) was the first to describe the juvenile form. Since that time some eighteen workers have introduced cases into the literature placing special emphasis on the constancy of an optic lesion. They do not agree, however, as to the exact nature of the lesion.

Practically half of the monograph is given over to method and material. The work commenced in 1927 in two institutions caring for persons showing evidence of mental disease and eye defect. In addition, all school children were examined for impaired vision. Complete mental and physical examinations were made, special attention being given to eye findings, using very thorough and accurate methods. Cases coming to autopsy were of exceptional value from the histological aspect. Family studies were made from every angle. The investigations included interviews with grandparents, parents, parents' brothers and sisters, brothers and sisters; persons who had known the families, social agencies, ministers, etc.; town archives were perused and finally an exhaustive questionnaire which was completed with the assistance of the author, his associates or some agency. Fifty case studies were made in full by Professor Sjögren, and are reported at length.

From the clinical analysis it is learned that as a rule the child is normal until between 5 and 8 years. Average age of onset is 6½ years. The disease progresses rapidly and within one to two years vision is reduced to quantitative light perception and recognition of objects held directly in front of the eyes.

According to the author the ophthalmic picture is as follows: papillae yellowish gray, blood vessels thin and well marked, no pathological pigmentation at first, variations bilaterally symmetrical. The change is first demonstrable in the periphery where small, round, firm, badly defined, semi-confluent, yellowish flocculent areas with a sparse scattering of pigment appear. In addition there is an atrophic retinitis, sometimes retinitis pigmentosa. In the late stages a cortical cataract is present and the pupillary reflexes inactive.

Dr. Sjögren divides the progress of the disease into 5 stages.

1. Blindness (two years).
2. Mental deterioration, speech disturbances, epileptiform seizures (two years later).

3. Outspoken dementia, apathetic, irritable, unable to concentrate, loss of interest, can only answer simple questions (age, name, etc.), speaks in monotone. No hallucinations or delusions. Can assist in their own care.

The neurological findings in this stage are constant. There is poverty of bodily movements; head and trunk bent forward; knees and elbows flexed and held stiffly; gait, *marche à petits pas*; Romberg negative; Babinski negative; intention tremor; pupillary reflexes active; slight impairment of sensory disturbances; convergent or divergent strabismus; hands and feet cyanosed.

4. Advanced helplessness, cannot feed or dress himself, sits staring into space, mask facies, speech gone, tongue protruded, strong crying or laughing, Romberg positive, hypertonicity of muscles, beats time with feet before starting to walk.

5. Idiot, helpless bed patient, cannot walk, stand or sit up, body completely flexed, muscles rigid, pupillary reflexes spastic, Babinski positive. At this stage frequently die of intercurrent infection.

The last chapters of the monograph cover the findings in respect to heredity and much time has been given to careful statistical elaboration, placing emphasis on the reliability of the Weinberg method. These findings will not be reported here, as mention is made of them in the author's conclusions which have been translated in full.

#### Conclusions:

1. It has been shown that juvenile amaurotic idiocy occurs in Sweden with a relatively considerable frequency as compared with the extraordinary scarcity generally emphasized in foreign literature.

2. It has been established that the ophthalmoscopic changes, as well as the growth and development of the neurological symptoms, show a remarkable uniformity and constancy in their progressive course. Especially the important position of the symptoms of extra-pyramidal motor character, the disturbances in the *motorik*, the disturbance of the gait in the so-called *marche à petits pas*, often with *démarche trépidante*, the increasing cowering down position, the hypertonia of a markedly rigid type, have been emphasized. The typical development and the symptomatology of the disease have been described in the form of a division into stages. The disease in its typical manifestations shows such a characteristic picture, that as a rule it should enable us to give a definite clinical diagnosis, even if it should occur singly in a family.

3. Juvenile amaurotic idiocy follows with a high degree of probability a recessive and monohybrid course of heredity.

4. The disease has to be regarded as being entirely different from the infantile form, as far as the hereditary-biological aspect is concerned.

5. The ancestors who with a high degree of probability have been shown to be heterozygotes show a distinct tendency to accumulate in several limited areas in different parts of the country.

6. The hereditary-statistical investigations concerning the occurrence of dementia præcox, oligophrenia and epilepsy among the aunts and uncles of the patients have yielded a strikingly high rate for the incidence of diseases. However, no significant differences with regard to the individual diseases in comparison with the ones found for the average population have been obtained.

R. MACLACHLAN FRANKS.

*The Psychiatric Study of Problem Children.* By SANGER BROWN, II, M. D., and HOWARD W. POTTER, M. D. (Utica, N. Y.: State Hospitals Press, 1930.)

The authors have assembled 152 brief pages of material from the fields of social work, medicine, psychology and psychiatry, which has a bearing on the understanding and treatment of "problem" children.

While the term "problem" is used in the title of the book, feeble-minded and other types of "problems" are considered in contradistinction to the limited application of the word in the child guidance clinic program elsewhere. The title otherwise may be a bit misleading since in addition to the psychiatric study of these children related fields of study, namely social work and psychology, are included. Actually, the content of the book represents a manual, or outline, for the clinical study and treatment of unusual children.

The material is divided into three parts. Part I deals with the study approach, which is historical, physical, biochemical, psychological and psychiatric. Part II is a discussion of clinical classification and the authors recognize five groups; physical etiologic factors, mental deficiency, other variations in intelligence, other mental and environmental causes and behavior disorders. Part III considers the questions of management and treatment. There is an appendix containing forms and tables.

It would seem desirable, in future editions, that the authors include more material on the "functional" types of problems, their origin, nature and treatment. This should give a better balance in relation to the "organic" and intellectual factors and their treatment, which are well presented. The discussion of "nervousness" under physical etiologic factors appears quite out of place and might be deleted from future printings without loss to the value of the book.

The book is obviously intended for those without a great deal of background of experience and training in the child guidance field, and for the beginner it should prove useful as an introduction and guide in clinical work with children. It is a difficult undertaking to bring together new material from a recent and rapidly developing field so that the whole is properly evaluated and well balanced. The authors deserve praise for their courage in making this attempt.

R. P. TRUITT, M. D.

*Children at the Crossroads.* By AGNES BENEDICT. (New York: The Commonwealth Fund, Division of Publications, 1930.)

This is one of the series of publications of the Commonwealth Fund, dealing with the problems of the visiting teacher in rural communities. The story of this pioneering social undertaking, its difficulties if not hardships, as well as the bracing challenge of its personal and social reconstructive potentialities, is ably told by Miss Benedict, herself a pioneer in the field. Not only the publication but the work itself was the upshot of that vitally intelligent interest that the Commonwealth Fund has shown and propagated to others in personal and community betterment.

Urban centers with a more progressive spirit have come to realize the usefulness of the visiting teacher. She serves as a sort of liaison officer between the school and the home and often other agencies in the interest of the child. When she needs help in the understanding or handling of her problems, she can call on the clinical and social resources of the community. But in the country she is a sort of miniature travelling child guidance clinic with little access for aid. If the success with which the author has performed her work is a fair sample of this experimental enterprise, the sponsors for the movement have good reason to be hopeful of its spread.

The writer with her ubiquitous Ford takes us over well-nigh impassable roads, from school house to school house—usually of the one-room variety, past grange houses and steepled churches, through widely scattered hamlets and one-street towns, to isolated human habitations—the homes of her Raymonds, Tims, Millies and Bonnys—where nature both human and non-human are often equally resistive. The book is well documented with case stories of children who were school and community problems coming as they did from broken homes, from homes with a drunken and brutal father, or homes of sordid barrenness of purpose or hope, the parents themselves the victims of grinding poverty, ignorance or short sightedness. There are too, the misunderstood or mistreated children, the mentally retarded children, the academically misplaced or underplaced children with their frequent sequence of delinquencies—the rank and file of problems that one sees in a child guidance clinic. How she worked with the children, hostile parents, sceptical communities, inadequately prepared teachers, courts and interested individuals, explaining, urging, demonstrating, often improvising social means or creating opportunities, alone or with others for a more promising personality growth, makes an absorbing story.

The work required much patience and persistence, tact and understanding of the cultural limitations of her country folk, courage to face hardships and devotion to a worth-while social ideal in the face of often disheartening human and natural circumstances. On account of these one is willing to overlook the inspirational tinge that now and then creeps in. The book after all is intended for semi-popular use and a certain amount of sentimentality from a book of that sort seems difficult to keep out. The publication should prove to be of much value to visiting rural teachers, not only because of the writer's example of courage and initiative in devising ways of social



procedure but also because of her helpful suggestions in the direct and common-sense handling of her problems. Social workers and all those interested in community mental health problems can read the book with profit.

ELMER KLEIN.

*Training Children.* By WILLIAM H. PYLE, PH.D. (New York: The Century Co., 1929.)

The author of this book is Professor of Educational Psychology and Director of the Children's Clinic, Detroit Teachers College. The book is dedicated "To mothers in whose hands lie all of the destinies of all of the years that are to come." There are 206 pages of material divided into two parts followed by a bibliography and index. Part I, consisting of 137 pages, contains a discussion of the principles of child training, and Part II covers, in 53 pages, the practical application of these principles.

In the first part of the book the author presents "either well-established psychological laws or legitimate inferences from them" and the various chapters are devoted to "What shall we do with our children?" then physical hygiene, inheritance, inborn traits, play, habits, morals, work, home and school, are discussed. Each chapter is followed by a series of questions for parents.

The second part of the book is handled by asking questions, followed by answers and selected references for further pursuit of knowledge about the questions raised. According to the author the questions are those that mostly trouble parents and the answers "are based either on well-established psychological facts and laws of human nature, or upon my own experience as a psychologist and father."

Fifty-eight habits are charted for scoring the child's behavior. There is a blank chart so that the mother can add and score other habits. Sixteen of the habits are in relation to the table. Habits, one learns, whether good or bad, are automatically developed and one wonders what sort of an automat a child would be if all the rules and regulations of this book were actually carried out by a mother. About three and one-half pages are devoted to a superficial discussion of adolescence and the sex question. In discussing thumb sucking, punishment, stealing, etc., there is no mention of the possible sex factor. The habit of masturbation is not mentioned at all. The author is a firm believer in hand washing.

One is greatly impressed with the author's "school marm" type of preaching to parents and the "fussy tidiness" with which he approaches the questions discussed. One habit (or virtue) is taught and practiced each week (as was done by Benjamin Franklin). Biblical quotations are freely used. The child should be "absolutely respectful and obedient," "if there is any place in this world for a czar, it is in the classroom," and parents should be held responsible, haled into court and made to suffer for a child's conduct and disrespect to a teacher.

One wishes that the author, as a psychologist, might have written a book based on modern "well-established psychological laws and facts" in regard to the training of children and that his "inferences" and experiences as a psychologist and parent might have been avoided. While parts of the book are simply written, easily understood and possibly helpful to some mothers, one fails to find sufficient recent or worth while material in the book from the field of clinical psychology to make it valuable or to cause one to believe that there is a need for this book.

R. P. TRUITT, M. D.

## **In Memoriam.**

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### **DR. JAMES HENDRIE LLOYD.**

James Hendrie Lloyd, son of Enos Morris Lloyd and Julia Hendrie (Lloyd), was born in Doylestown, Pa., December 1, 1853. He died of septic pneumonia at the Presbyterian Hospital, March 14, 1932. His father was an attorney-at-law. He was the fourth of a line of physicians in his mother's family. His great-grandfather, grandfather, and maternal uncle all were medical men. He was prepared for college at Wyer's Academy, West Chester, Pa., and received from Princeton the A. B. in 1873 and A. M. in 1876. He studied law in his father's office for two years after graduating from college and then, deciding that his real ambition was to be a physician, entered the medical school of the University of Pennsylvania, graduating in 1878. In 1879 he married Miss Susan Newell. They had four children, two sons and two daughters, of whom three survive, Captain J. Paul Lloyd, U. S. A., W. Hendrie Lloyd, of Philadelphia, and Miss Marion Lloyd.

He became a member of the American Neurological Association in 1886 and its president in 1899. He was also president of the Philadelphia Neurological Society and member of the Philadelphia Psychiatric Society. He was very active in these societies and read many papers before them. He was at one time a member of the consultant staff of the state hospital for the chronic insane at Wernersville and of the Institute for Feeble-Minded Children at Elwyn. He also belonged to the county, state and national societies, and became a fellow of the College of Physicians of Philadelphia in 1886.

He held many hospital positions. He was appointed visiting neurologist to the Methodist Episcopal Hospital at the time of its foundation and served for 35 years. He was appointed neurologist to the Philadelphia General Hospital in 1888, resigned after serving quite a few years, was reappointed, and again resigned in 1925. He was for years Professor of Neurology in the Graduate School of Medicine.

He was editor of the *Philadelphia Medical Journal* from 1901 until 1903. He wrote a great deal on neurological, psychiatric and medico-legal subjects. He also wrote two very useful and interesting popular essays published in *Scribner's Magazine*, one entitled "Mental Contagion and Popular Crazes," the other, "The In-correctible Optimist." Some of his most important work in medico-legal jurisprudence appeared in the fifth edition of Wharton and Stillé (1905).

Lloyd was much more than a mere man of medicine. He did not believe in the recent American idea, that a specialist should know all about one organ of the human body and nothing about any other organ. On the contrary, he believed that a specialist should first be a well-trained physician and simply devote especial attention to some one part of the body. Furthermore, he was born with scholarly instincts and seized every opportunity to feed his intellectual hunger. He had wide cultural interests and was one of the best read men among my friends. Medicine to him was not a money-making trade but a profession which he deliberately chose, and to which he had, if I may be permitted to use a theological term, a positive call. He suffered for years from a physical handicap. During middle life he began to be hard of hearing and in his later years was completely deaf. He carried his burden uncomplainingly, and was an exception to the rule, that the deaf become peevish and suspicious. He was neither. He was a splendid example of a high type, a type which some of us think, or at least fear, is becoming less frequent as "demos" is growing more powerful and changing the ideals of the world.

CHARLES W. BURR.

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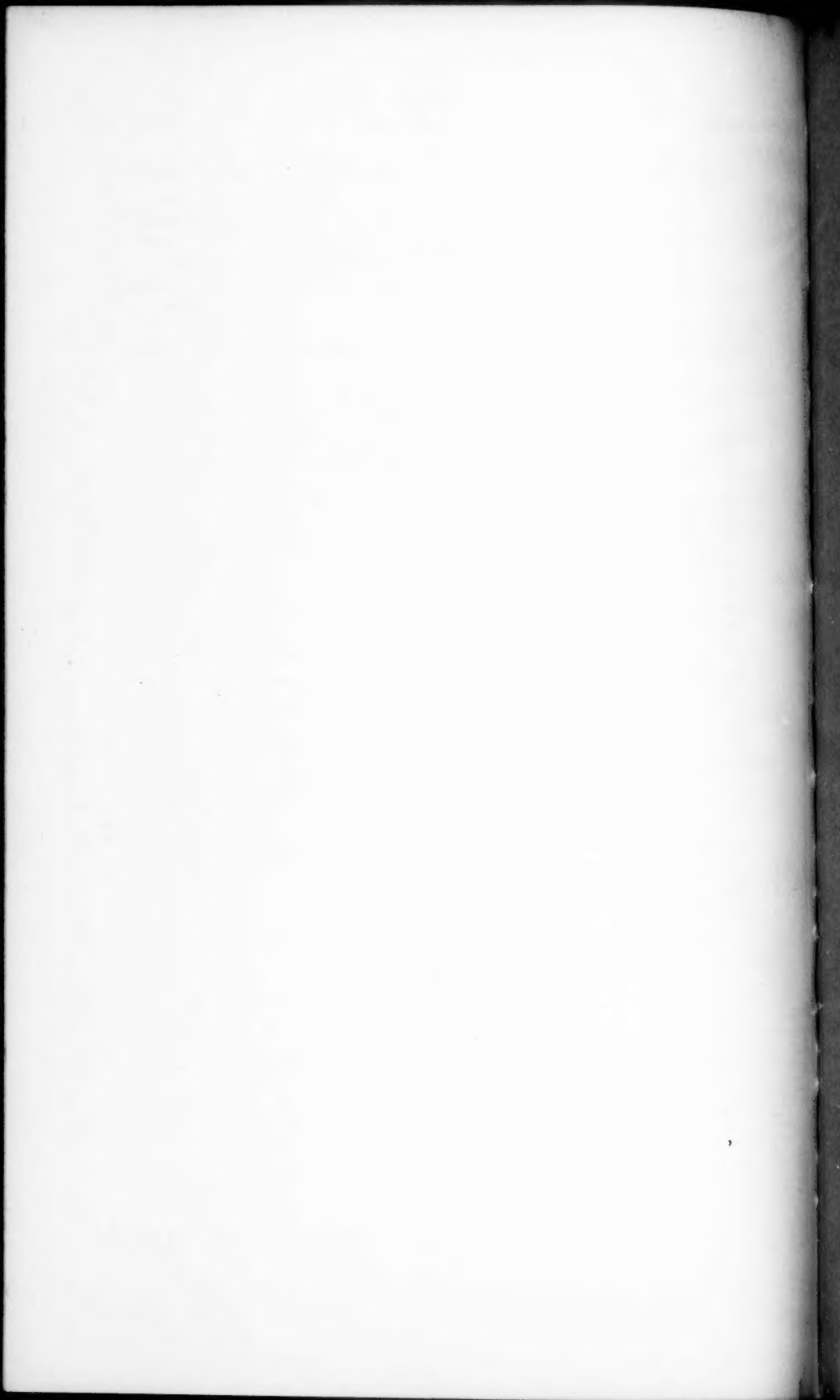
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